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A consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

*The Journal of the Fire Protection Profession*

FEBRUARY 20, 1929

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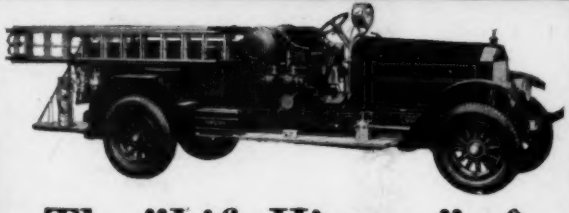

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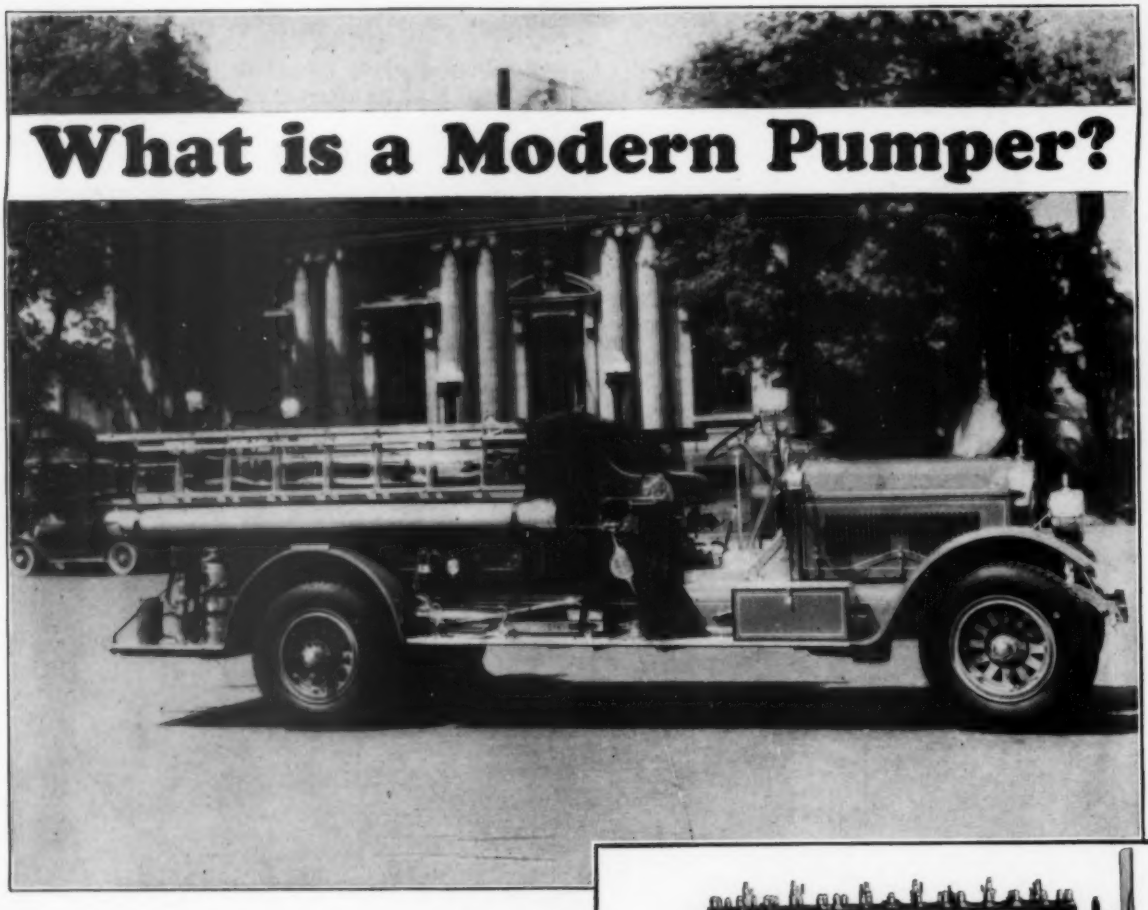

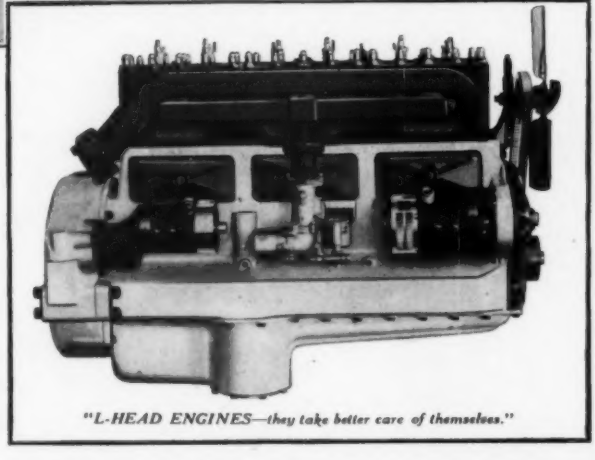

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*The Publishers*

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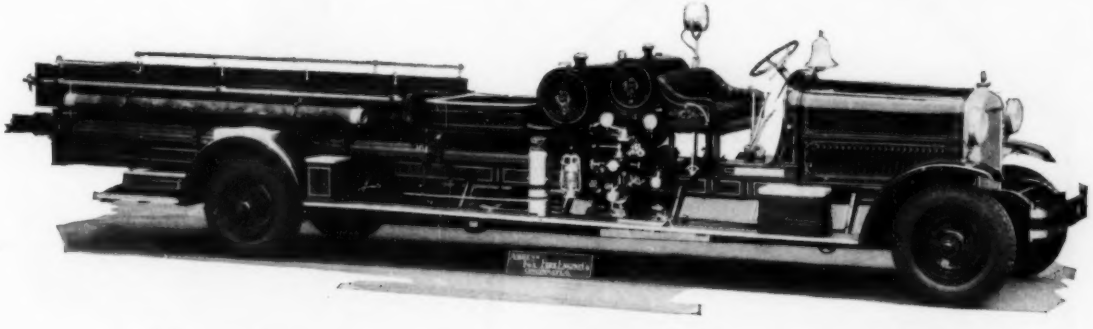

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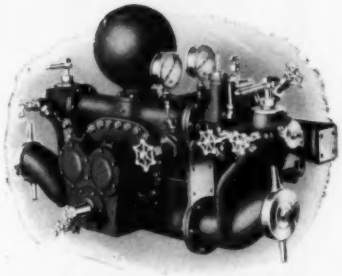

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(A Consolidation of Fire and Water Engineering and The Fire Engineer)

*The Journal of the Fire Protection Profession*

VOLUME LXXXII FEBRUARY 20, 1929 NUMBER 4


# A Study of Firemen's Pension Systems

## Results of Investigation Made by U. S. Department of Labor— Outstanding Features of Systems in Use by Some Larger Cities

**EVERY city that is blessed with a paid fire department, must give some consideration to the matter of pensions. Or if a plan is in use, the men in charge of the system must be alive to changes that are going on due to economic transitions, and a more modern outlook on working conditions. The study made by the U. S. Department of Labor, should prove of interest to fire department officers.**

SOONER or later, each city of any size must solve the question of a retirement system for members of the fire department, either the entire department or those on the uniformed force. It is a step demanded by the men as a safeguard against the time when, through age or other causes, the means of a livelihood will be jeopardized.

This investigation, conducted by the U. S. Department of Labor, covered cities having a population of 400,000 and upwards. There are thirteen cities that have a separate firemen's retirement system and in three cities, the pensions of the fire and police departments are combined.

IN Baltimore and in Boston the firemen are included in the general scheme covering city employees, and in three cities they and the police are merged in a common system. Elsewhere they are covered by plans of their own, often dating back to a period very near the organization of the service as a city department. With the exception of the San Francisco system, all of these retirement plans were formed in the last century, the oldest being that of New York City, which commenced paying benefits in 1871. A number, however, have been so changed within recent years that they are practically new systems. Minneapolis, for instance, introduced important changes in 1921, Milwaukee and Pittsburgh in 1924, and Detroit in 1925. Chicago made various changes in its system in 1917, and since 1925 has had several plans under consideration for reorganizing it, or for including it with the general municipal retirement plan.

The systems covered, with their approximate membership in 1926, are as follows:

| | | | |
|---|---|---|---|
| Buffalo | 946 | New Orleans | 628 |
| Chicago | 2,341 | New York City | 6,078 |
| Cincinnati | 624 | Philadelphia | 2,100 |
| Cleveland | 1,061 | Pittsburgh | 931 |
| Detroit | 1,698 | St. Louis | 940 |
| Milwaukee | 723 | San Francisco | 967 |
| Minneapolis | 513 | | |

These systems commonly cover only the uniformed force, but in a few cases it is specifically stated that all members of the department are to be included, while in others certain groups of the nonuniformed members are covered. The Detroit system, for instance, applies to uniformed and civilian groups alike, while the Chicago plan covers the fire-fighting force, the fire-alarm operators, and the linemen connected with the department.

IN Buffalo the system is managed by a board of 5, consisting of the mayor and 4 councilmen, in Detroit by a board of 5 all of whom are ex-officio members, in New York the commissioner of the department is trustee of the fund with full power to administer and control it, and in San Francisco the board of fire commissioners has the trusteeship of the fund. In the nine remaining cities the members of the force are represented on the administrative body, and not infrequently form a majority there. In New Orleans, for instance, the board consists of the president and secretary of the board of fire commissioners and the chief engineer of the department, ex officio, and 6 members of the uniformed force elected by their fellows; the Minneapolis board of 8 includes 6 active members of the force elected by their fellows, and in Milwaukee the board of 5 consists of the city treasurer, 1 member appointed by the mayor, and 3 elected by the firemen from their own number.

THREE of the systems, those of Detroit, New York City, and San Francisco, are noncontributory, the cities bearing the whole expense, but elsewhere the employees and the cities join in supporting the plans. In regard to contributions from employees the contributory systems are evenly divided, five fixing the contribution at a flat sum monthly, and five requiring a percentage of the salary. In the first group the Cincinnati system calls for a contribution of 50 cents a month from each member, in Cleveland the payment ranges from 50 cents to $1.25, according to the rank of the member, in Minneapolis it is fixed at $1.50 a month, with an initiation fee of $10, in St. Louis it is $2 per month with an initiation fee of $5, while in Philadelphia members in active service contribute one day's pay and pensioners one-half of a day's pay, based on their salary at the time of retirement. In the second group the firemen of New Orleans pay 1 per cent of their salaries for pension purposes, those of Chicago and Pittsburgh 2.5 per cent, and those of Buffalo 4 per cent. Under the Chicago system a fireman who retires before reaching 50 must contribute an amount equal to 2.5 per cent of his final salary yearly until he reaches that age. Milwaukee has a carefully worked out system under which members pay 3 per cent of their salaries for their own annuities, 1 per cent for windows' annuity, one-half of 1 per cent for ordinary disability benefit, and one-eighth of 1 per cent toward administrative expenses. In Minneapolis, New Orleans, and Pittsburgh, members are liable to assessments of from $1 to $2 upon the death of a fellow member.

As in the case of the police retirement systems, it is common for the cities to use for the benefit of the firemen's fund a number of miscellaneous receipts. New Orleans, for instance, turns over to the fund all fines imposed upon the force and fines imposed upon others for violations of the fire regulations, 1 per cent of all license fees, payments for special details, rewards for special services, and proceeds from the sale of surplus and condemned property of the department.

Another source of income is often the tax on business done in the State by outside fire-insurance companies. It is not unusual for a State to levy a tax on such business and to turn over to the cities in which it is done all or part of the tax on the business done in that city, often specifying that a certain percentage of it is to go to the fire department's pension fund.

The city also very generally makes a direct contribution of whatever amount is needed to maintain payment of pensions and benefits, either appropriating it each year from the general revenues or levying a tax especially for the purpose. Of the cities covered, Milwaukee alone has a carefully worked out system of contributions designed to cover each year the liabilities

incurred that year. For each man on the pay roll it contributes annually 9 per cent of his salary for his pension, 2.5 per cent for the widow's allowance, and one-half of 1 per cent for ordinary disability benefits. In addition, it contributes yearly one-eighth of 1 per cent of the aggregate pay roll toward expenses of administration and makes a deficiency contribution to meet extra benefits and the prior-service liability. Its contribution is raised by a tax levy not to exceed five-tenths of a mill on the dollar.

In several cities the fire department still maintains the custom of having an annual carnival, getting up an annual handbook with charges for advertising, or in some similar manner raising money either for the retirement fund or for the benefit association which is sometimes maintained in close connection with the retirement system.

IN Milwaukee the city and the members of the force make regular contributions to defray the cost of administration, but elsewhere either such expenses are paid out of the general funds of the system or there is a rather vague division of costs between the system and the city, the former perhaps paying for clerk hire, postage, printing, and the like, while the latter carries such expenses as rent, heat, and light without making any distinction between what might justly be debited to the system and what is strictly chargeable to the department. In a few cases the whole cost of the system is carried as part of the department's expenses.

AS a condition for retirement on allowance, age is rather an unimportant matter in the firemen's systems, only five cities imposing an age qualification, and several of these modifying it by other circumstances. Philadelphia puts the age for optional retirement at 45, with a service requirement of 20 years. Chicago puts it at 50, but permits retirement earlier if the claimant has served for 20 years; in such a case, however, contributions to the fund must be continued until the retirant reaches 50. Minneapolis sets 50 as the normal age for optional retirement, but permits it earlier if 20 years of service have been given; in that case, however, the allowance does not begin until the retirant has reached 50. San Francisco makes retirement optional at 55 after 20 years of service, but permits it at any age after 25 years' service. Milwaukee varies its age requirement according to length of service and to the allowance to be paid. Retirement is optional at 57 if the retirant has served 15 years, or as soon after 57 as 15 years of service have been completed. It is also permitted at 50, after 20 years' service, or, with a reduced allowance, at 50 after 10 years' service. The remaining eight cities have no age requirements.

It is not customary to set an age for compulsory retirement, the arrangements for disability retirement taking the place of such a provision. The San Francisco system specifies that a member may be compulsorily retired at 60 or over, if infirm or incapable, but in the other systems this is taken for granted.

A service requirement is universal. Milwaukee sets it at 15 years, though, as mentioned before, it sometimes permits retirement after 10 years, reducing the allowance when this privilege is claimed. Eight cities, Buffalo, Chicago, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, and St. Louis, fix it at 20 years. San Francisco requires either 20 or 25 years, according to age, and Cincinnati, Cleveland, and Detroit call for 25 years.

All these systems provide for retirement on allowance in case of disability incurred in the performance of duty, without imposing any conditions as to age or length of service. The is the only form of disability retirement on allowance permitted in Detroit, Philadelphia, St. Louis, and San Francisco, but the other systems give pensions in case of ordinary disability, providing it is not due to the man's own fault or misconduct. Cincinnati requires that such a retirant must have served not less than 5 years, and New York makes a difference in the amount of pension granted if the service is of less than 10 years' duration, but with these exceptions there are no age or service limitations. Medical certification of disability, based upon examination, is generally required, and under some systems periodic reexaminations must be taken so long as disability pensions are paid.

NINE cities (Buffalo, Chicago, Cincinnati, Cleveland, Detroit, New Orleans, New York, Philadelphia, and San Francisco) give as the normal retirement allowance half or "not less than half" the salary drawn at the time of retirement, five of them modifying this provision somewhat. Chicago places on it a minimum of $600 and a maximum of $3,000 a year; Cincinnati puts a minimum of $75 and a maximum of $100 a month; Cleveland has the same maximum, but makes the minimum $87.66 a month; Detroit specifies that the allowance is to be half the salary attached to the rank held at the time of retirement, and that if this salary is changed at any time the pension is to undergo a corresponding change; and Philadelphia sets the allowance at one-half of the average annual salary for the last four years of service.

The four remaining cities use different plans. Under the Milwaukee system the allowance consists of an annuity bought by the retirant's accumulated contributions, plus a pension bought by the city's accumulated contributions to his credit, the two together not to exceed 75 per cent of the highest salary received during the period of service. For those in the service before the present system was adopted, the city provides a prior service allowance. Minneapolis gives $600 a year to those retiring after 20 years' service, and increases this by progressive additions for each 5-year period in excess of the required 20. Pittsburgh grades its allowances into six classes, according to the rank held by the retirant, the annual amounts running from $600 to $900. St. Louis gives $600 a year.

Only two of these cities, Milwaukee and Minneapolis, make any distinction between the service allowance and the duty disability allowance. Cincinnati and New York, while making no difference between these allowances, pay a smaller allowance to those retiring on account of ordinary disability with only a limited term of service. The nine remaining cites pay the same allowance, whatever the cause of the retirement.

In cases of ordinary disability, Cincinnati pays no allowance unless the retirant has served at least five years. For those meeting this condition, the allowance is $3 per month for each year of service up to 25, at which point it reaches the minimum for service and for duty disability, and there it stops. In actual practice, since service retirement is permissible after 25 years of service, the retirant would probably claim that, rather than the disability allowance.

Under the Milwaukee system the allowance for duty disability is 55 per cent of the salary drawn at the time the disability was incurred, with an additional allowance of $10 a month for each child under 18 years old, the total amount not to exceed 75 per cent of the highest salary drawn during the period of service. For ordinary disability the allowance is 50 per cent of the salary, from which 4 per cent is deducted for annuity purposes; this allowance may not be paid for over five years.

Minneapolis grades the allowance according to the degree of incapacity. For those who are totally disabled the allowance is $900 a year; those who are permanently incapacitated for work as firemen but are able to do light manual labor or office work receive $480, and those who are disqualified for firemen's service but able to do ordinary manual labor receive $180 yearly.

In New York the allowance is the same for service retirement, for duty disability, and for ordinary disability after 10 years of service; for ordinary disability with less than 10 years of service, the allowance is not to exceed one-third of the final salary.

The Cincinnati and Cleveland system provide that if a member is dismissed after a stated period of service, unless it be for certain faults specified in the regulation, he is entitled to a dismissal pension. In Cincinnati it is given for dismissal after 15 years of service and amounts to $2 a month for each year of service rendered, up to 25. In Cleveland the service period is 12 years, and the amount of the allowance is fixed at three-eighths of the salary.

(*Continued on page* 157)

**What Is Wrong With This Picture Taken in Japan?**

Although this photograph which was taken in Japan shows that school officials are alive to the fire danger, it also indicates that the hand-operated pumper which was used in this country many years is one of the current appliances in that country. The above shown girls from a Tokio school The students are instructed in how to operate the pumper, and how to use the hose lines.

# A Hot Fire for a Small Department

**Frame Hay Storage Warehouse Gives Small Department Stiff Four-hour Battle—Exposures Well Covered**

THE fire described in this article of the series on Administration well illustrates what the small town volunteer department is likely to encounter in its work. The fire involved a two story frame warehouse, well filled with baled hay and baled straw, together with a large quantity of wheat and oats in plank bins.

The town in which this fire occurred is located in the mid-west section of the country, and has a population of approximately 4,000. Water supply is fairly good, but in the neighborhood of the fire there was only one 8-inch main and one cross-connecting 6-in main available, supplying four hydrants within easy reach.

The department consists of three volunteer companies, Co. No. 1 being equipped with a 700 gallon triple combination truck; Co. No. 2, a 500 gallon triple combination, and Co. No. 3, a combination hose and ladder truck. Water pressure at the hydrants in the neighborhood of the fire averages 45 pounds static, but upon connecting the first engine this pressure dropped to 20 pounds.

### Description of Fire Building

The building in which the fire occurred was occupied as a wholesale hay and grain store and warehouse. As shown in the sketch herewith, the front part of the building on the ground floor was occupied in one section as an office, and in the other section as a fanning, sacking and shipping room. Just behind this latter room was a stairway and open hoist, the latter being employed for raising baled hay and bagged grain to the second floor.

The central part of the ground floor was well filled with baled hay and baled straw while the rear portion was occupied by two bins, one well filled with wheat and the other with oats in bulk. An elevator conveyor was placed between the two bins which hoisted the grain to the bins and also to the second floor.

The fire building was of two story timber construction with frame work throughout, there being no fire resistive materials employed.

Directly to the north of the fire building was a one story brick garage with wooden roof, having a finish of tar and gravel.

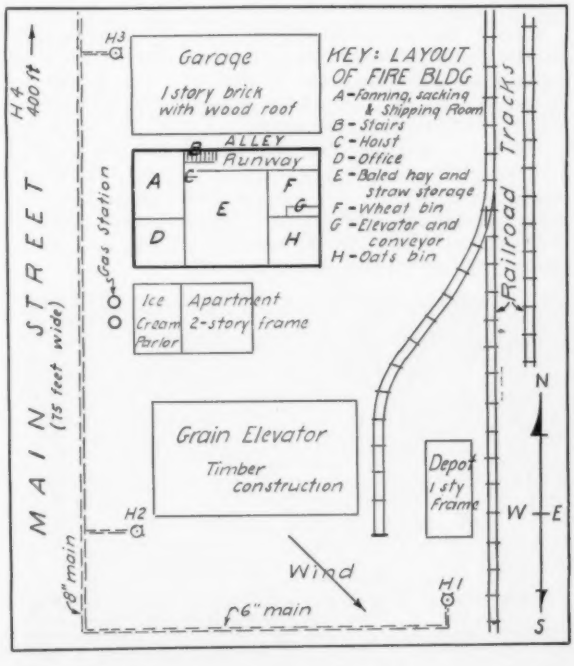
To the south was a two story frame building, the front part of which was occupied on the ground floor as an ice cream parlor and the rear portion as well as the second floor as apartments. Directly in front of the ice cream parlor was a gas station as indicated in the diagram.

Farther to the south was a grain elevator of approximately 50 feet in height. This elevator was of timber and plank construction. To the east of the gain elevator was a one story frame depot.

### The Fire

The fire occurred in the early afternoon and was caused by a portable electric cord being jammed by the hoist in the hoist shaft. This cord, which supplied current to a fanning mill at the front of the building, extended into the shaft where it was tapped into the electric conduits therein. The cord became separated from its support, and the hoist on going downward tore the cord away, and jammed it between the ground floor landing and the bottom of the hoist with the result that an arc was formed and fire must have dropped to the pit below the hoist. A few minutes afterward when fuses were replaced and light turned on in the central part of the ground floor, it was found that fire was burning beneath the hoist floor. An attempt to extinguish it was made by a workman employed in the store, but he was unsuccessful and thereupon called telephone "central," who sounded the siren bringing the department out.

Apparently fire traveled very fast for by the time the department arrived fire had extended up through the hoistway to the second floor, and had also involved the hay and straw on the ground floor.




### How the Fire Was Fought

Company No. 1 was stationed at hydrant No. 3 and a single line stretched at once to the hay storage room on the ground floor. Smoke was already getting intense and flames were fast traveling over the high piles of baled hay and straw. An attempt to wet down the bales was unsuccessful, due to the fact that they were stored up close to the ceiling and it was next to impossible for the water thrown from the stream on the floor to reach the bales further back.

Bystanders were pressed into service to stretch a second line from Engine Co. No. 1, and this line was also brought in alongside the first line on the ground floor of the building. After operating for a few minutes, and before the second engine company got into service, the smoke and heat became so intense in the room that both lines had to back out, one of them remaining to operate

in the doorway, and the other one stretching around to the runway at the rear.

The second engine, upon arriving, positioned itself at hydrant No. 2, and stretched in a single line by way of ladder to second floor of the building. This line was met with heavy smoke, but the fire had not gained much headway. An attempt to reach the fire by operating from the window was apparently unsuccessful, for the blaze continued to increase in intensity. This line remained at the window and attempted to accomplish its purpose of getting in on the floor, but was unsuccessful.

The third company coming in, the hose and ladder company, stretched in a line from hydrant No. 1, but due to the low hydrant pressure, this line was useless.

After being fought with one line from the front and one from the rear on the ground floor and one line on the second floor for about 15 minutes, the fire suddenly burst through the roof and from then on its progress was fast.

Line operated on second floor was forced to go to the street by the intense heat, and lines operating on the ground floor were forced to operate from the street and vacant lot at the rear.

Soon it was seen that the building was doomed, and the fire department thereupon devoted itself to covering exposures. One line from Engine Co. No. 3 was assigned to cover the roof of the garage, while a line from the first and one from the second company were directed to cover the building directly south of the fire building and the grain elevator as well. In this they were successful, and while the fire completely leveled the hay and grain storehouse, it did not get beyond this one building.

The editor's ideas on the handling of this fire will be given in the next issue of this journal.

## VANCOUVER, B. C., FIREBOAT EXCEEDS CONTRACT NEEDS

**Construction Financed by Possible Reduction in Insurance Rates—Description of Portland, Ore., Fireboats Just Placed in Service**

MOST every city that has water front property to protect has given some consideration to the construction of fireboats. At present, the matter of boats for protecting such risks and marine vessels, has come up for discussion at fire chiefs' meetings.

"The J. H. Carlisle" has recently passed her official tests before being placed in service to protect the industrial area of

**Testing the J. H. Carlisle, New Fireboat for Vancouver, B. C.**

False Creek, part of Vancouver, B. C., Canada. She is the start of a plan for fire boat protection that has been advocated by Chief J. H. Carlisle, veteran fire chief in Vancouver for many years.

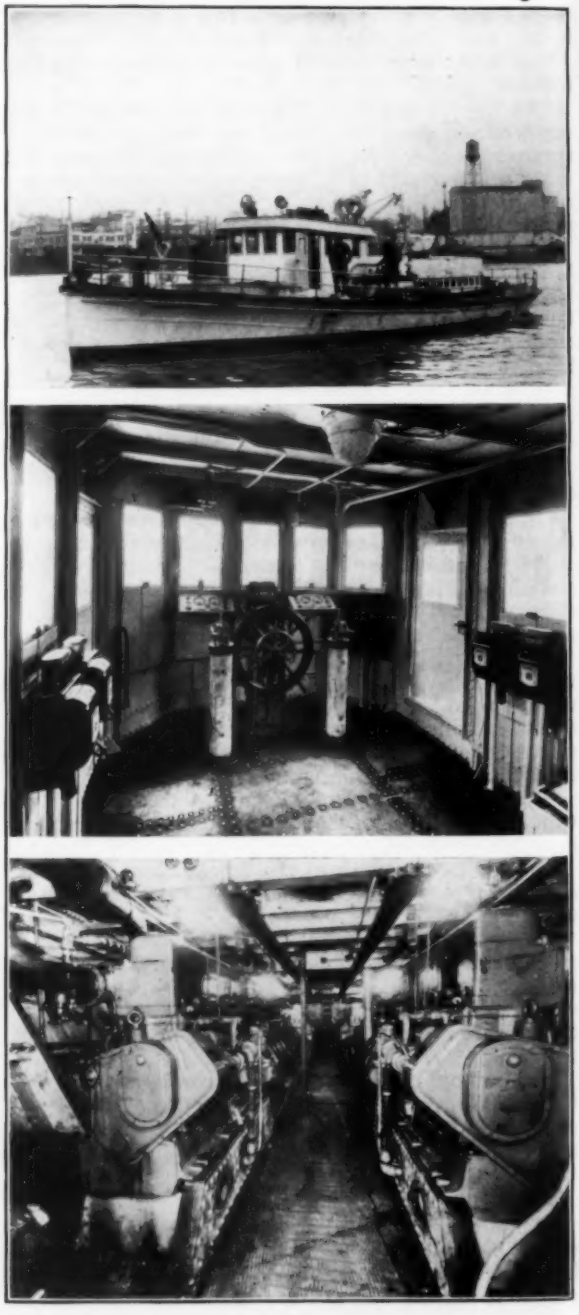
The boat is of steel construction throughout and is sixty feet long. It is capable of operating at a speed of eleven knots an hour and her pumps have a capacity of 6,000 U. S. gallons a minute.

It was built at North Vancouver from designs by Arthur Bennett who also supervised its construction. The boat is equipped with Sterling gasoline engines with a three to one reduction gear for the propelling unit and two eight-cylinder gasoline engines rated at 300 h.p. each, for operating the pumps. The boat complete costs $52,440.

During the tests she exceeded the guaranteed speed of seven knots when driven by the propelling engine alone, by two knots, and by four knots when using the monitors and pumping units to assist. The tests showed pumping capacities in excess of ten per cent of her guarantee.

Vancouver advanced the money at six per cent interest and

(*Continued on page* 157)



**Three Views of the Fireboat David Campbell**

Upper, exterior view of the boat; center, interior of the pilot house, and lower, the engine room. The same construction applies to the other two boats contracted for at the same time.

# What Should Modern Rules Include?

## There Are Comparatively Few Rules Applying to the Rank of Lieutenant—Ninth of This Series of Articles

AS compared to the rules of captain, described in the last five articles of this series, the regulations pertaining to the rank of lieutenant are few. Only twenty-six different rules are found for this rank in the forty-one reports analyzed, as compared with 236 for the rank of captain. An analysis of the rules for lieutenant follows:

In twenty-two out of the forty-one departments considered the following rule is incorporated:

"When acting as Captain the Lieutenant shall exercise the authority and assume the responsibilities of the Captain and shall be held personally responsible for the good order of the apparatus and implements under his care. It is the duty of the first Lieutenant arriving with his company at a fire to exercise command only until the arrival of a superior officer to whom he will report and whose orders he will obey."

In thirteen of the forty-one departments the following rule is enforced:

"The lieutenant is required to perform such other duties as may from time to time be assigned him by superior officers."

Eight of the departments consider the following three rules essential:

"When the Captain is present the Lieutenant shall obey his orders promptly and cheerfully and properly assist him in the performance of his duties."

"The Lieutenant shall be in charge of Company on the opposite shift from the Captain; shall keep notes on all matters and occurrences during their shift, and turn over the same to the Captain at the time of changing shift. No changes shall be made during the absence of the Captain without his permission, unless ordered by the Chief or Asst. Chief of Department."

"The rank of Lieutenant shall be next below that of Captain."

Out of the forty-one cities only four require that:

"The Lieutenant shall, under the direction of the Captain inspect all buildings, except dwellings within their company district in order to become familiar with their construction and class of business carried on and to learn the most expedient manner of attack in case of fire, together with such other knowledge as would be of interest to the department; also make note of such inspections in the inspection book."

Three cities have incorporated in their rules and regulations the following two rules:

"The lieutenant shall carefully examine all apparatus after each run and see that every nut, part and bearing is tight and in good serviceable condition."

"In the absence of the captain the lieutenant shall have general supervision of the house and appurtenances."

The rules which follow have been found listed in but one city each:

**Baltimore, Md.**

"Where two lieutenants are assigned to a company, the senior lieutenant shall be in command."

"When a lieutenant is assigned truck company and not in charge, ride on step alongside of tillerman while responding to or returning from alarms of fire."

"When a lieutenant is assigned engine or hose company, not in charge, ride on rear step of hose wagon."

"Lieutenants commanding Water Towers, Hose and Chemical companies shall have the same authority over their men and apparatus as is conferred upon captains, subject to such conditions as are herein provided. When they are first to arrive at fires they shall be authorized to proceed at once to extinguish the fire with a chemical stream, if possible, without waiting for orders."

**Portland, Me.**

"A lieutenant shall make no changes in the absence of the Captain except with his knowledge and consent, or upon order of the Chief."

**Yonkers, N. Y.**

"The lieutenant shall see that fire extinguishers on apparatus are charged once a month."

"The lieutenant shall report any fire escape drop ladder which is out of place and any fire escapes encumbered. Drop ladders, when used by the department, shall be replaced after the fire is out."

**San Francisco, Cal.**

"The lieutenant shall perform the duties required of hosemen or truckmen, as the case may be."

**Rochester, N. Y.**

"The lieutenant must report to the Battalion Chief of his district, if at any time the Captain of his company is unfit for duty, and must in such cases execute and carry on the orders from such Chief."

**St. Louis, Mo.**

"Lieutenants are exempt from deck duty but not from joker watch."

"The lieutenants shall report any and every violation of rules, regulations or orders if same have not been reported by the Captain."

**Syracuse, N. Y.**

"Lieutenants shall be detailed one day each month while off duty to inspect buildings or schools and this work shall be done under the supervision of the District Chief in charge of their

**Scaffolding Fires Are Becoming Very Common**

There are far more enviable positions than being four hundred feet up in the air fighting a fire amid wooden scaffolding with a temperature of nine degrees below zero. The Chicago firemen were called to fight a blaze that licked the top five stories of the forty-story Foreman National Bank Building in the Loop section. The steel framework had been completed. Despite the ease with which the timber burned, it is said that the damage will amount to only a few thousand dollars.

respective districts. While doing this detail work, the lieutenant shall be in full uniform.

**Jersey City, N. J.**

"The lieutenant shall ride as near as possible to the drivers and chauffeurs and direct them going to and returning from alarms of fire."

**Springfield, Ill.**

"When going 'Off Duty' the lieutenant shall start and run the engine in the presence of his relief."

**Washington, D. C.**

"The lieutenant of a company, as the officer in charge of a platoon, shall be responsible as a company commanding officer, but not as a captain, unless acting as the first officer of a company in the absence of a captain."

"In combination houses where there are two lieutenants and only one captain, the lieutenant or officers in charge of the truck company shall be the commanding officer of the truck company when it leaves quarters for any purpose, and shall be held responsible for men, apparatus, and appliances from the time of the receipt of the alarm until returning to quarters of the company, unless otherwise ordered."

"In combination houses where there are two lieutenants and one captain, if the captain is absent and both lieutenants are on duty, the lieutenant of the engine company shall be commanding officer while in quarters, unless otherwise ordered."

"In combination houses where there are two lieutenants and only one captain, if the captain and the lieutenants of the engine company are absent, the lieutenant of the truck company shall assume command of the engine company."

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# HOW FIREMEN CAN COOPERATE WITH THE DEPARTMENT HEAD

**Success of Department Depends Upon Fullest and Promptest Obedience of Members—Discipline Is Another Name for Cooperation**

By E. C. HULTMAN
Fire Commissioner of Boston

BY stretching my imagination I have been unable to conceive just how the "Head of a Fire Department" should cooperate with the members under him. The duties of the head of the Fire Department are clearly defined by the statutes, and he has no course to pursue but to carry out those duties with the assistance and cooperation of the force provided by the municipality. In view of this I am inclined to believe that there was an error in the framing of the topic or in its transmission, and I think it is fair to assume that the topic was intended to read "Cooperation of the Members of the Department with the Head."

This subject, as I have worded it, is a very interesting one, for in my opinion it opens a wide field for discussion, particularly as to just what should be the relationship between the Head of a Fire Department and the members under him. To define the subject assigned to me literally means the concurrent action of the members with the head, and herein we find the first principle of any organization. To function successfully, harmoniously and with the highest degree of efficiency, cooperation is the most essential characteristic. Cooperation or concurrent effort is the backbone of the well-being of any enterprise, be it civic, social or commercial.

### Cooperation Must Be Ever Present

The word "cooperation" as applied to a fire department must be taken in its strictest sense. It must be ever present to the last degree, for cooperation in a fire department is as necessary as in an army in active service where disloyalty, another word for lack of cooperation, results in death and disaster. Because cooperation is such an absolute necessity in a fire department it is a combination of discipline and loyalty. A fire department is an army in civil life. Because of the nature of its work, members of a fire department must perform all duties assigned to them harmoniously and obediently, without questioning the propriety of an order once they are aware that it has come from a superior officer. In this way cooperation allies itself with discipline, and in order that proper discipline may obtain, rules have been established for the government of the department. These rules are the result of careful study, and are made not to favor the strong and oppress the weak, not to be lenient on some and severe on others, but to treat all alike. If a fire department does not operate on such a basis, occasions arise when it fails in its obligation to perform the service for which it is maintained. Members must be trained in discipline as well as in the method of performing their duties so that the organization may be depended upon to function properly whenever it is called to duty.

### An Obeying Member Is a Cooperating Member

As long as a member is willing to obey the rules of the department he is a cooperating member, but when he feels that the rules are not meant for him, the only right he has is the right to exercise the prerogative that is his and separate himself from the service. No man can be a good fireman and at the same time openly defy or evade the rules that have been established for the government of the department. The statutes are generous in their protection of civil service employees in their positions, but occasionally it is necessary to punish an individual because of his negligence in obeying the rules of the department. The degree of punishment is generally measured by the importance of the rule, but it should be borne in mind that a man is not always punished because his officers believe that he is defying them, but to impress upon him the fact that he has become careless and neglectful; at the same time such punishment serves as an admonition to the entire department that all rules must be strictly obeyed. If the head of a fire department believes that a member has violated a rule in open defiance of its existence there is only one course for him to pursue, the fractious member must be dismissed at once. The same procedure must be followed in the case of continual offenders, for they must be judged by their attitude toward the service for which they are paid, therefore when they continually disobey rules there can be only one conclusion, namely, that they are acting in defiance of them.

In a large department we find a few men who conduct themselves not in actual disobedience of rules, but in a manner which indicates a spirit of disinterest, or a desire on their part to do no more than they are forced to do. They come as near as they dare to breaking rules without technically breaking them; such men violate all the principles of loyalty. Sooner or later these men are found out and exposed. They are shunned by their fellow-workers and are scorned by all who know them. They become chronic and disgruntled fault finders and soon find that they are not welcome in any gathering of real, honest firemen. Finally, these men find themselves engulfed in the mire of their own dissatisfaction and commit a breach of the rules which results in their dismissal with disgrace to themselves and to the department.

### No Place for Men Who Do Not Cheerfully Obey

Men who are not cheerfully amenable to discipline and men who are mentally or physically disloyal are the men who fail to cooperate with the head of a fire department. There is no place for them in any society, and most of all in an organization whose efficiency is determined by loyalty and discipline, and whose pride is in service to save the lives and property of his fellowmen.

Since I have been Fire Commissioner of Boston I have had an unusual opportunity to observe the conduct of the men and I am pleased to say that the kind of men just described by me are few and far between in our department. It is indeed most gratifying to report that the great army of men who have dedicated their lives to the hazardous occupation of saving life and property from the havoc of man's worst enemy — fire — are of the highest type of American manhood, selected in open competition from among their fellows for their physical ability to do their work, their general fitness and desire for the service. In a few years they are trained in efficiency and discipline so that they soon mature as firemen of the highest grade, ready to sacrifice everything in devotion to their duty to their fellow men. As I look into the clear eyes and faces of the men of our department and see stamped there the imprint of courage and fearlessness which characterized the youth of America in the World War, I see in these men the future heroes of the army in civil life. To many will come honor and glory, to some tragedy on the field of duty, and others will go along performing service in the ranks, unhonored and unsung. These are the men who make up the great force of firemen in our country. There is little lack of cooperation to be found; on the other hand there seems to be a desire to give the best at all times, to do a little more to improve the efficiency of the department, to serve in such a manner that it will reflect honor and credit to our profession.

(From an address before the annual convention of the Massachusetts State Firemen's Association.)

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**Sumner, Ia., Not to Answer Outside Calls**—Fire companies of Sumner, Ia., will not leave the city limits.

# History and Evolution of Fire Fighting

## First Water Tower Used in New York Fire Department—Progress in Fire Fighting and Apparatus—Conclusion of History

By FRED SHEPPERD, Managing Editor of FIRE ENGINEERING

THE first water tower appeared in the New York Fire Department in 1882, or thereabouts. It was rather a crude affair and had nowhere near the elevation of the present tower. It is shown in Fig. 17. Notice that the conventional deck gun at the rear of the tower is present.

Apparently this tower is operated entirely by hand as Present water towers extend to an elevation of 65 feet, which elevation has not been changed for possibly 30 years. Water towers now in service are operated by spring and hydraulic pressure and afford a much more flexible and effective arrangement than the earlier design.

New York has taken the lead in developing a tower with two nozzles on it, one located at the top of the mast and the other at the center. Additional changes may be made in the future to make the tower more effective on high fires but this is a subject on which only the future can enlighten us. If space permitted, I would like to close this series by describing progress in the fire alarm signalling. However, this is quite a lengthy subject and would make a very interesting topic by itself. Sufficient it will be to say that the first application of the telegraph to fire alarm purposes was made in 1845 by Dr. Wm. F. Channing of Boston. The principles then laid down by him are those which underlie the system which has been adopted and in general successful use.

### Progress in Fire Fighting and Apparatus

To briefly sum up progress in fire fighting and apparatus, the following is presented:

The hand engine came into its own about 200 B. C. It was used as the main means of extinguishing fires, so far as we are able to learn from history, until the beginning of the dark ages, shortly after the fall of the Roman empire. Then for a period of over 1,000 years we know little of fire fighting methods. Shortly after the invention of printing, we learn that the hand engine is again considered a new machine for fire fighting. By checking up we find that little change was made in this period of over 1,000 years in the hand engine. And more surprising it is, still, to learn that even up to the early part of the 19th century the same principles which were involved in the first hand engine which history tells us about—the Heron engine—are employed in all hand engines.

Chemical extinguishers came into the picture in 1812 but were not widely used until about 1840. From then on they assumed a larger and larger part of the work of extinguishing fire until in recent years they have been credited by some departments with extinguishing 95% of all fires to which these departments respond. This includes the use of the chemical engine of the larger type—such as mounted on motor apparatus.

Post-Civil War times found the growing use of the steam fire engine which rapidly displaced, in the larger cities, the hand engine. The volunteer departments still used the hand engine in smaller communities but it was rapidly supplanted by the steamer. The steamer held its own until around 1908 when it commenced to lose ground to the automobile fire engine which now has the field.

Ladders were used in fire fighting for a period at least as long as the hand engine and, in addition, up to the present time. Extension ladders and aerial ladders were not employed, however until about 60 years ago—that is, on a large scale.

It would not be well to close without saying a word or two of recent developments. The advent of foam apparatus has been very timely—to handle the hazards incidental to large oil operations. Before automobiles came into their own, the oil problem was not a serious one, but with the present tremendous consumption of gasoline, crude oil, and petroleum oil, establishments have grown to a huge size, and with them have grown tremendous fire hazards. The foam equipment, as at present developed, seems to be thoroughly capable of handling this hazard.

Fig. 17. Water Tower Extended.

And another type of extinguisher is coming out for specialized uses, the carbon dioxide extinguisher. It employs gas under pressure of around 800 pounds, and this gas when released forms carbon dioxide snow which has an extensive cold temperature. This snow changes directly from the solid state into the gaseous without becoming liquid and extinguishes a fire by a two-fold process, namely, chilling the burning material down to a point below the ignition point and smothering the fire by covering it with a blanket of carbon dioxide gas. It has been proven very effective for certain inflammable volatile liquids as well as for electric fires, and may even find additional uses as time goes on.

This much may be said in conclusion, that as new hazards arise, new methods and means will be found to handle them from a fire protection standpoint. With the tremendously rapid development of industry in this coun-

try, we may thus expect more rapid changes in fire fighting apparatus and methods in future years then we have in past centuries.

## EXPERIENCE GAINED IN FORMING A FIRE DEPARTMENT SALVAGE PATROL

**All Firemen Trained in Salvage Work by Officers Trained in Chicago School—Big Handicap in This Plan Is Lack of Department Personnel**

By THOMAS D. BLAKE
Chief of Fire Department, Rockford, Ill.

IN order to decrease fire losses progressive firemen have turned their attention to the development of a property salvage service.

It will be admitted by most patrol officers that if cooperation could be obtained from the fire departments their work would be greatly lessened. Here, therefore, lies the advantages of the Fire Department Salvage unit. Every phase of fire administration has its salvage value and if in every operation the different units of a fire department command can be made to bear in mind the principles of salvage work, a remarkable reduction in the average loss would result.

With the fire department operating the salvage units and training its personnel in salvage work this thought can be thoroughly impressed. It has been proven to me time and time again that this training must be given to every man in my companies if he is to realize the necessity of such cooperation. The disadvantages in the majority of cases of attempted fire department salvage work lie in the lack of sufficient men to adequately cover the ground necessary to provide protection. Except in the larger cities no fire department has men or apparatus which can be devoted to salvage operations alone and in most cases the department is so far behind in its expansion program that it is almost impossible to obtain anything for this purpose.

Under these conditions the officer, wishing to provide a salvage service for his city, must be content with a secondary plan; utilizing such apparatus and men as are available by doubling up on the company fire duty an increased effort on the part of the men. To do this with any success, the department must make use of every known aid to fire fighting to enable them to cut down the heat, water and smoke damage.

**Fire in Roasting Plant Causes $100,000 Damage**

An explosion spread flames through the six-story building occupied by Newark Brothers in Los Angeles. Fire spread through roasted coffee chaff and about machinery. It gained considerable headway before the firemen arrived.

For instance, it would be utterly impossible for a department working under this plan to spread a couple hundred covers as is commonly done by the patrols or even half that number. So, if the service is to be effective the department must reduce the number of covers needed down to what it is possible for them to spread. To do this they will have to ventilate and cover exposures in order to get in at the fire and confine it to its area. This in itself will tax the ingenuity of the officer in charge, especially if the number of lines that can be had are limited. They will have to use small lines where it is possible, to cut down the water damage. By making use of sill hooks, third men, and devices of a like nature they must cut down the crews to the minimum in order to release men for salvage duty.

There are times when it is impossible to salvage at all. By this I refer to fires that have attained such headway that every man will be needed to extinguish them. Under such conditions an attempt to detach them for salvage work would be foolish and the officer facing such a problem must be content to carry out his extinguishing operations and let the salvage work go by the board. However in a city of a hundred thousand or less the percentage of large fires are very small and in most cases the operation of a salvage unit is feasible.

In planning the salvage service for Rockford the items to be studied were divided into three groups—expense, transportation, equipment and training. The expense problem was solved by strict economy in the budgeting system, for at the time there was no money appropriated for salvage equipment, and in order to get anything at all, money had to be diverted from other sources.

The transportation problem was a difficult one to handle. It was seen from the start that the salvage equipment must be on hand at every fire and that to get it there it would be necessary to have it carried on the busiest and heaviest loaded companies of the department. As a trial experiment we equipped the truck companies with a half-dozen heavy covers that could be used for inside or outside covering.

It was not long before these covers paid for themselves. One of the first fires at which they were used resulted in a nine hundred dollar fire loss and a damage report of contents of only five dollars. This experiment proved to us that while the covering of the contents of a building must be secondary in consideration, the truck companies could usually cover up before much water had started. By the use of small lines it was possible to greatly reduce the water to be handled and to release pipemen to assist the truckmen. About this time I became interested in the training methods used by the Insurance Patrol's School in Chicago and in the tools and methods used by the patrols at fires. The results of this interest was that in a conference with Chief McAuliffe I placed my problem in his hands for study. Acting on his advice I started to equip my trucks with more squeegees, shovels, and the like for the control of water and for overhauling, and with the light covers carried by the patrols. At the present time each truck carries fourteen inside covers, ten roof covers, four squeegees, six brooms, four shovels, four mops, and three hammers in addition to regular truck equipment.

Through the courtesy of Chief McAuliffe we were

(*Continued on page* 154)

# WITH THE EDITOR

## Ignoring the Chief's Recommendations

The annual report of a chief of a Middle States fire department mentions the fact that he has asked the city for thirty-seven additional firemen. He then reminds the city fathers that he has made this request in each of his annual reports for the past ten years, and without avail!

Unfortunately, while perhaps this may be an aggravated case of the ignoring of the recommendations of the fire chief, it is by no means an isolated one. Only too often the suggestions for the betterment of the service contained in the annual reports and other recommendations of the head of the fire department are more honored in the breach than in the observance.

And yet, there is not a particle of doubt that there is no one so well qualified to tell the city authorities what is needful for the efficiency and well being of the fire department than the chief of that department. If he is an efficient officer—and he could not long hold the position, if he was not—the man at the head of the fire-fighting forces must of necessity know better than any other individual what is most needed to make that organization a perfectly functioning one.

The very fact that the chief knows full well that he cannot expect to be granted requests for trivial or unnecessary expenditures for his department will work toward his toning down his recommendations to the absolute necessities for the good of the service. This being the case, the city authorities take upon themselves a very grave responsibility in refusing to grant recommendations which the chief makes looking to the improvement of the city's fire protection.

How often, however, in spite of all this, does one read that the recommendations of the chief have been completely ignored by the city authorities! If this passing up of the requests for added men, apparatus or equipment is intended to be a measure of economy, it is certainly a back-handed sort of method. It is more often than otherwise a policy which saves a few dollars and results in the expenditure—or, more exactly, loss—of many thousands. Of course, if the city is lucky and no large fires visit it, it may "get away" with this "economy." But it is a species of gambling that is decidedly risky, and may very likely result in disastrous loss of life and property, through the lack of proper facilities to handle the big fire when it comes, and even of preventing the little fire from becoming a big one.

Much wiser it is for the city fathers to "face the music," and spend the necessary money to place their fire department upon a basis that will enable it to handle any situation that may ordinarily arise. By doing this there will be no post mortem regrets and "I told you so's" to arise and vex them!

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## Where Snow Is Not An Unmixed Evil

As a general rule, snow is looked upon by the fire chief with a good deal of apprehension, especially if the fall is a heavy one. It means heavy going for the fire apparatus and even presages the stalling of engines while answering an alarm.

At any rate, where streets are narrow, stalled pleasure cars may delay the apparatus or even prevent it from continuing on its way for an appreciably long period, until the stalled cars can be dug out of a drift.

But now comes a chief who has discovered snow as a blessing! And this is how he argues it out: His city is "provided" with a large number of wooden shingle roofs, and fires from this source are frequent and apt to quickly spread. But when the white mantle covers the inflammable roofs the danger of spread is minimized, and the city is so far safe from conflagration until the thaw comes to remove the protective covering.

Of course, one may argue that if this chief's city enacted an anti-wooden shingle law, as so many municipalities have, the need for the snow would not be great, as protection would be afforded in summer as well as in winter. No doubt this is true, but as things are now in that particular city, when the white flakes begin to fall, the barometer of hopefulness begins to rise, as the chief knows that, at least for the time being, his city is comparatively safe from conflagration caused by the inflammable wooden shingle. Some of our American cities should be situated in the polar regions, where a snow mantel would at all times neutralize the dangers incident to the quick burning roof covering.

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## Limiting Outside Runs

There is a tendency among fire departments having considerable of an outlying suburban district to restrict the answering of calls for assistance to the cases of the most urgent need for help. There are several reasons which make such action expedient, if not an actual necessity.

One reason for this is the fact that in many such districts provision is made by the inhabitants to handle their own fires, unless of too great extent for them to take care of. This is accomplished by means of county or local suburban fire departments, or by the housing of the farmer or suburban apparatus in the city's fire house, to be manned by extra men who are set apart

for this work, while nominally part of the city's fire-fighting force.

In many cases where no such arrangement has been made, and the suburbanites rely upon the metropolitan fire department for protection, it is felt by the city or village authorities that such service, when gratuitously rendered or when given for a nominally small sum, is unfair to the taxpayers of the home town. A run into the country leaves the city or village just so far unprotected as the number of apparatus and men are withdrawn to fight the outlying blaze. The authorities in such instances feel that their first duty is to their own citizens, and if the suburbanites desire complete fire protection, they should do as others have done, and form their own fire department.

Action looking toward the elimination of country runs by the city and village fire departments will undoubtedly precipitate the formation of such outlying units, as it has done already in many localities. This, in turn, will lessen the number of farm and country fires and lower to this extent the fire loss record of the nation.

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**Department Organized in Fruitland, Ida.**—Following lessons learned at oil fires, a fire department was organized in Fruitland, Idaho.

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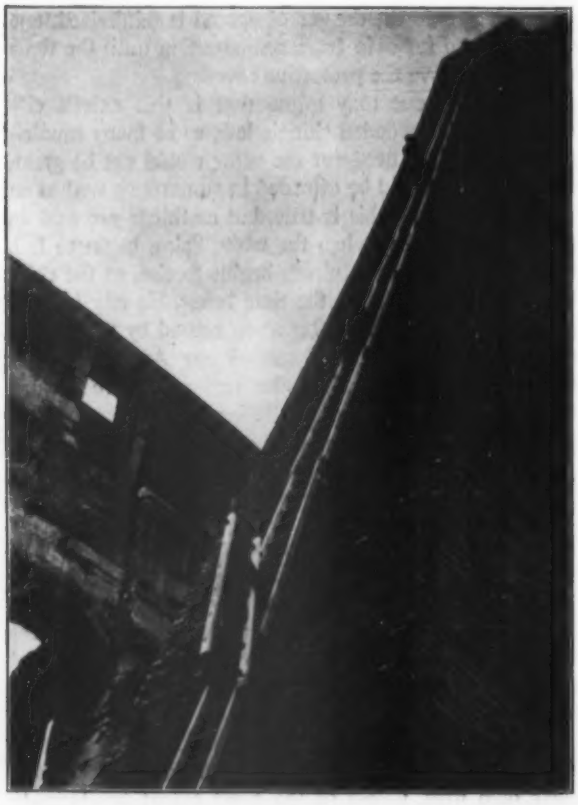

**When Life Becomes Boresome, Try This**

Italian firemen practice on the sides of the famous Coliseum in Rome. They are here shown climbing up one of the many pillars, sixty feet in height. The ladder is made up in sections. Each man making the climb carries one section of the ladder with him. They lock together similar to ladders used by window cleaners.

## Who Needs Some Back Numbers?

Horace B. Clark, a member of the Board of Fire Commissioners, Hartford, Conn., has been a subscriber to FIRE ENGINEERING for the past twenty years, and in that time has accumulated a number of back issues of the magazine. At the present time, he can no longer spare the space required to store the old copies, and he would be pleased to send them to whosoever needs any particular issues or volume to complete a file. The list includes:

| | |
|---|---|
| 1907 Volume XLII | All the issues excepting 1, 2, and 7 |
| 1908 Volume XLIII | All the issues |
| 1908 Volume XLIV | All the issues |
| 1909 Volume XLV | All the issues |
| 1909 Volume XLVI | All the issues |
| 1910 Volume XLVII | All the issues excepting No. 12 |
| 1910 Volume XLVIII | All the issues |
| 1911 Volume XLIX | All the issues excepting No. 20 to 26 |
| 1911 Volume L | All the issues |
| 1912 Volumes LI & LII | All the issues |
| 1913 Volumes LII & LIV | All the issues |
| 1914 Volume LV | All the issues excepting No. 4 |
| 1914 Volume LVI | All the issues |
| 1915, 1916, 1917, all complete | |
| 1918 Volume LXIII | All the issues |
| 1918 Volume LXIV | All the issues excepting No. 2 |
| 1919 and 1920, all complete | |
| 1921 Volume LXIX | All the issues excepting No. 2 |
| 1921 Volume LXX | All the issues |
| 1922 Volume LXXI | All the issues excepting No. 18 |
| 1922 Volume LXXII | All the issues |
| 1923 and 1924, complete | |
| 1925 Volume LXXVII | All the issues |
| 1925 Volume LXXVIII | No. 1-12, 14-17 |

Those interested in obtaining the back issues should write to Mr. Clark, 43 Prospect St., Hartford, Conn.

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## Farmers Have Chance for Adventure

According to David J. Price, chairman of the committee on farm fire protection of the National Fire Protection Association, opportunities for adventure and service are offered the men of every farming community in America, provided they will organize to protect their homes from fire.

Mr. Price, who is in charge of the chemical engineering division of the Bureau of Chemistry and Soils, United States Department of Agriculture, states that many of the hundreds of farm homes and buildings which burn each week can be saved by the use of simple fire-fighting apparatus and well-organized fire companies in rural communities. The use of simple but modern fire-fighting equipment and the organization of country fire departments are neither too expensive nor difficult for the average country community, he says.

He recommends the recent report of the N. F. P. A. to all farming communities desiring to organize their own fire protection. This report states that a first requisite in the organization of a country fire department is the monthly drilling of its members for speed and early control of all fires. Membership, it says, should carry distinction in the community and the privilege of a club room and should be limited to those who can reach the fire-fighting apparatus within two and one-half minutes of the blowing of a siren controlled from a telephone exchange or similar public place open all night. No less than ten men, including a chief, assistant chief, engineer, and seven fire-fighting privates should compose any fire company.

These and many detailed instructions as to fire-fighting equipment, organization, and personnel are given in the report of the association, which is composed of a dozen important organizations working in close cooperation with the United States Department of Agriculture, to lessen annual fire losses on the farms.

Additional information on this subject can be secured in a copy of The Rural Fire Department, published by the agricultural committee, National Fire Waste Council, United States Chamber of Commerce, Washington, D. C.

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**Missouri to Vote on Insurance Tax**—A bill has been introduced in the Missouri legislature to establish firemen's pension systems to be supported by a levy on fire insurance premiums sold in cities where the system is established. Such a measure was introduced in the 1927 legislature but was emphatically opposed by insurance interests, and it failed to pass.

**Wants to Raise Pay of New Orleans Chief**—A plan has started to raise the pay of the fire chief in New Orleans from $5,000 a year to $6,000 so that the pay will be on par with the city commissioners. A suggestion was made that the surplus department credit of $116,000 be used to purchase sites for four new fire stations.

# Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

## Some Foam Generator Problems

*To the Editor:*

I will greatly appreciate having you answer the following questions for me:

If working at a fire with a foam generator mixer:

1. With 1000 feet of 2½ inch hose from pumper to generator mixer, and with 100 pounds pressure on the generator mixer gauge, what pressure must I have at the gauge on the pumper?

2. How many gallons of water would you use a minute at the mixer?

3. What would be the friction loss in the 1000 feet of 2½ inch hose?

4. With 150 feet of 2½ inch hose and 1¾ inch tip from the generator to fire, how far would the stream of foam travel?

W. T.

*Answer* 1. The pressure required at the engine will depend upon how much pressure is lost in friction from the engine to the mixer, at which point you maintain 100 pounds pressure. We will have to make assumptions, and we will assume that the nozzle is discharging 800 to 1,000 gallons of foam per minute. This is a reasonable amount of foam for discharge from a large nozzle. In this case you will be using around 125 gallons of water per minute. The friction loss in 100 feet of 2½ inch hose carrying 125 gallons per minute is found by the usual formula to be 4.37 pounds, approximately. The friction loss for 1,000 feet would be 10 times as much, or 43.7 pounds, of 44 pounds approximately. You have 100 pounds at your mixer, you would thus require 100 plus 44 or 144 pounds at your engine.

*Answer* 2. One pound of foam powder mixed with one gallon of water gives approximately 8 gallons of foam. In other words you will be using 1 gallon of water for each 8 gallons of foam. If the discharge from the nozzle is 1,000 gallons of foam per minute, you will be using approximately 125 gallons of water per minute.

*Answer* 3. This figure has been given in the answer to question 1, and is 44 pounds.

*Answer* 4. No answer can be given to this question for there is no data available on the range of foam streams. Foam is so light, that slight fluctuations in the velocity of the wind will make tremendous changes in the range of the stream. Furthermore, foams of different consistency have different ranges, the thick, dry foam having less range than the slimy foam.

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NOTE—*These Questions and the Answers are continued from the February 6 issue.*—EDITOR.

## Buffalo Questions and Answers

*To the Editor:*

I will appreciate very much if you will answer the following questions, asked at a former examination:

19. In using a 35-foot ladder, which weighs 4.4 pounds per foot, how much must a man lift to raise the ladder by grasping the ladder in the middle—pounds? How much at 20 feet from ground rest—pounds? Show figures.

20. Will two men each on a crank handle 15 inches long and each exerting 55 pounds pressure, be able to raise 1,200 pounds (the middle section and fly of a 3-piece aerial ladder)? The hoisting drum for the cable is 6 inches in diameter and has a 40-tooth gear on the drum shaft and a 20-tooth pinion on the crank shaft.

21. Will the force of a stream striking the broad side of a steel beam in a fire filled building cause the beam to bend away from the stream?

In the issue of February 8, 1928, there is an article on how to get capacity from your pumper. Example on page 98 shows the following: Test for a 750-gallon pumping engine.

Pump pressure is 130 pounds.

Nozzle pressure is 76 pounds.

Discharge is 793 gallons per minute.

Hose layout is two lines of 100 feet 2½-inch hose siamesed into a 1¾-inch tip.

I have tried to figure this out by the following formula:

Engine pressure = nozzle pressure x (1.1 + .242 x L) = ?

Friction loss in 100 feet of 2½-inch hose siamesed = 3.6 divided into friction loss in single line 100 feet in diameter = ?

For 793 gallons = ?

$2 \times 7.9 \times 7.9 + 7.9 \div 3.6 = 36.8$ pounds.

Friction loss plus nozzle pressure gives engine pressure.

$36.8 + 76 = 112.8$ pounds engine pressure, which is much less than 130 pounds as shown in the figures referred to above.

Please tell me how I can find the value of "L" in the following: An engine is pumping through two 100-foot lines of 2½-inch hose siamesed into a 1¾-inch nozzle; engine pressure 120 pounds?

Please state the discharge, friction loss, and nozzle pressure in this example:

19. No. This problem comes under what is termed "moments of force," in physics or mechanics. Fig. 1 illustrates the problem.

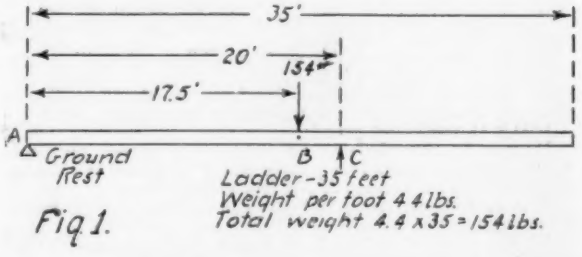



Fig. 1.

Here is shown the ladder lying on the ground, and the ground rest, or end of the ladder which is to rest on the ground is indicated.

In making a calculation with a simple body such as a ladder, where the weight per unit is uniform, we must first determine the center of gravity of the body. This is the point at which the body balances. In other words if we should support a ladder at its center of gravity it would be like a see-saw—perfectly balanced. As the ladder is of uniform weight throughout its entire length, the center of gravity will be right at the middle point of the ladder. Now here is a simple little rule which will help us figure the problem out. The product of the distance from the

center of gravity to the ground rest (or end of ladder) and the total weight of the body is equal to the force (which must be applied at any point on the ladder to raise the ladder) multiplied by the distance from this point to the ground rest.

In the first part of this problem, the man is lifting the ladder by grasping it at the center—in other words, at the center of gravity. Then the total weight of the ladder (154 pounds) multiplied by the distance of the center of gravity from the end 17.5 feet) must be equal to the distance from the end at which the man is grasping the ladder times the weight. As he is grasping it at exactly the same distance from the end as the center of gravity is located, he must be lifting the full weight of the ladder or 154 pounds.

Now in the second part of the problem he is grasping the ladder at a point 20 feet from the ground rest.

As in the last case, the product of the distance of the center of gravity from the end times the weight of the ladder must equal the force the man is applying to raise the ladder times the distance from the point at which he grasps the ladder from the ground rest.

In other words $17.5 \times 154 = 20 \times F$, where F is the force the man is applying.

If you will solve this out you will find that the man must be applying a force of 134.75 pounds.

20. Refer to Fig. 2 for layout of apparatus.

This problem, too, is a question of balancing or comparing the moments of force.

On one end you have the two men each forcing the crank with a force of 55 pounds, or a total of 110 pounds.

On the other side you have a weight of 1200 pounds endeavoring to rotate the drum in the reverse direction.

It is merely a question of which exerts the greater force on the drum, the 1200 pound weight or the two men working on the crank and through the chain of gears.

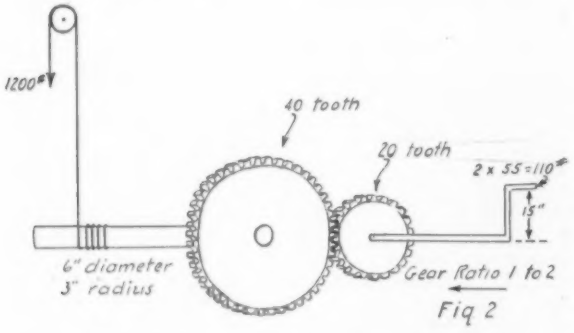


Fig 2

Now let's work it up in the form of moments of force.

We have 110 pounds of force working on a 15 inch lever. The lever is 1¼ feet long (or 15 inches).

$2 \times 55 \times 1\frac{1}{4} = 137.5$ foot pounds. This moment is applied to the shaft which rotates the 20 tooth gear. The 20 tooth gear turns a 40 tooth gear. The 20 tooth gear goes around twice for each time the 40 tooth rotates. In other words, we have 137.5 foot pounds (moments of force) doubled up in going through the chain of gears, giving us a moment of force of 275 foot pounds reaching the center of the drum.

Now operating against this we have 1200 pounds pulling on a cable wound around a 6 inch drum.

To figure out the moment of this force we take the radius of the drum which is 3 inches or one-quarter of a foot.

$1200 \times \frac{1}{4} = 300$ foot pounds.

Now notice that the men are endeavoring to run the drum with a moment of 275 foot pounds while the ladder is resisting this effort with a moment of 300 foot pounds.

It is evident, therefore, that the men cannot hoist the ladder when pushing on the crank with a 55 pound force each.

21. Yes. The amount the beam may be bended away from the stream may not be perceptible, but as a steel beam is perfectly elastic up to a certain point, the deflection is proportional to the force applied.

The solution of the problem in the last part of your letter is as follows:

$$\text{E. P.} = \text{N. P.} \times (1.1 + \text{KL})$$
$$= 76 \times (1.1 + 0.242 \times 2)$$

Where the nozzle pressure is 76 pounds; K for two parallel lines of 2½ inch hose and 1¾ inch nozzle is 0.242; the length of the parallel lines is 100 feet, and L is therefore equal to $100 \div 50$, or 2.

Then $\text{E. P.} = 76 \times 1.584$
$= 120.4$ pounds approximately.

You will note that this checks very closely with the engine pressure as given in the example you cite.

As the lines are laid horizontally, the friction loss will be equal to the engine pressure minus the nozzle pressure or $120.4 - 76 = 44.4$ pounds.

Discharge is found by the usual formula, namely,

$$\text{Discharge} = 29.7 \times d \times d \times \sqrt{p}$$
$$= 29.7 \times 1\tfrac{3}{4} \times 1\tfrac{3}{4} \times \sqrt{76}$$
$$= 29.7 \times 1.75 \times 1.75 \times 8.71$$
$$= 792 \text{ g. p. m. approximately.}$$

This figure also checks very closely with the discharge as given in the example.

When using the value of K for parallel lines siamesed into a single nozzle the value of L is the length of either line, measured in 50 foot sections. In other words, where the parallel lines are 100 feet lone, $L = 100 \div 50$ or 2.

## Discharge Through Main

In the solution of the problem given on Page 59 of the January 23 issue, there was a misstatement of a trigonometric law, namely, the sine law.

In order to get the angle B in the triangle ABD

$$\text{Sine B} = \frac{AD}{AB} = \frac{28.4}{36} = .788.$$

From trigonometric tables, we find that the angle whose sine is .788 is 52°. Therefore the angle ABC, or twice angle B, is 104°.

The area of the complete circle is $.7854 \times 72 \times 72 = 4060$.

A circle has 360 degrees.

The section is $\frac{104}{360}$ parts of the circle or to find the area of that portion, $\frac{104}{360} \times 4060 = 1172$.

Area of triangle ABC = ½ x 22 x 56.8 = 624.8.

Area of segment or shaded part is 1172 — 624.8 = 547.2 sq. in. or $\frac{547.2}{144} = 3.8$ sq. ft.

Cubic feet of water discharged in second is 3.8 x 3 = 11.4.

Cubic feet of water discharged in one day = 11.4 x 60 x 60 x 24 = 984,000 cubic feet.

To convert this to gallons of water discharged in one day, multiply this value by 7.48, as that is the number of gallons in one cubic foot. The answer then becomes

984,000 x 7.48 = 7,360,000 gallons a day.

## Motor Engineers Organize in Detroit

The Detroit Fire Department Motor Engineers' Club was organized on February 4 and officers elected. The club is so organized that each unit holds its own meetings but the various groups cooperate with each other. Thomas E. O'Neill is president and John J. Romps, secretary.

## New Firehouse Opened at Wellesley

A new firehouse was placed in service on Feb. 2 in Wellesley, Mass. The building is two stories in height and of stone construction. It was designed by Blackall, Clapp and Whittemore, of Boston.

Chief Thomas F. McNamara, of the Wellesley Fire Department, and Col. John A. Decrow, of the board of selectmen, acted as hosts at the opening ceremonies and buffet supper.

Among the guests were Chief Selden R. Allen, of Brookline; Chief William Coulter, of Framingham; Chief Daniel B. Tierney, of Arlington; Chief Frank E. Tracy, of Woburn; Chief Clarence W. Randlett, of Newton; Chief William H. Hill, of Belmont; Chief George L. Johnson, of Waltham; Frank E. Taft, of the Seagrave Corporation; Frank M. Tiffany, of the Gamewell Company, and P. C. Charnock, of the New England Insurance Exchange.

A new Seagrave aerial ladder truck was installed in the house, also a Seagrave motor pumper.

HARRY BELKNAP.

**Missoula, Mont., May Buy Apparatus**—Missoula, Mont., is considering the purchase of fire apparatus to be used in answering alarms outside the city limits.

# TWO LARGE APARTMENT HOUSES UNDER CONSTRUCTION, DAMAGED

**Apartment in Brooklyn Razed by Five-Alarm Fire—One Section of Large Garden House Group Destroyed on Staten Island—Chief Kenlon Responds**

By WM. JEROME DALY

NEW YORK CITY was visited by two fires in apartment houses in course of construction last week—one in the Brownsville section of Brooklyn on January 22nd and the other on the peak of St. George Hill in Staten Island on Thursday, January 24th. The latter necessitated a call for apparatus from Manhattan. Four engines and one truck were ferried across the bay from the Battery.

Five alarms were sounded for the Brownsville blaze which caused over 100 workmen to flee as walls of the six story apartment house at 214 Rockaway avenue collapsed at one o'clock in the afternoon. Wagon pipes and a water tower helped to subdue the blaze in about an hour. Chief Kenlon rushed over

**Five-Alarm Fire That Razed an Uncompleted Building**

the East River bridge from Manhattan and took charge. The fire did not differ much from the customary run of unfinished apartment house fires that have visited New York City for the past year.

The Staten Island fire was in one of a group of four buildings, high on the hill overlooking the St. George Ferry for Manhattan. The building was 66 per cent finished—ground having been broken last July. The fire was discovered about 11 a. m. and like a flash it had leaped through the structure eating its way through the bare lath and studding. The plaster had not as yet been applied and upon this fact is based a long story—a plasterer's strike for six weeks preceding the fire.

Acting Deputy Chief John Spencer, in charge of the fire forces on Staten Island, sounded a third alarm—all he could sound and then he sounded what New York calls a Master Signal, which is equivalent to a fifth alarm, bringing apparatus from Manhattan. The fire had made considerable headway, however.

Chief Kenlon rolled down to the island with Commissioner Dorman. One of the walls collapsed, but most firemen escaped. One was injured and removed to quarters by Dr. Archer of the department.

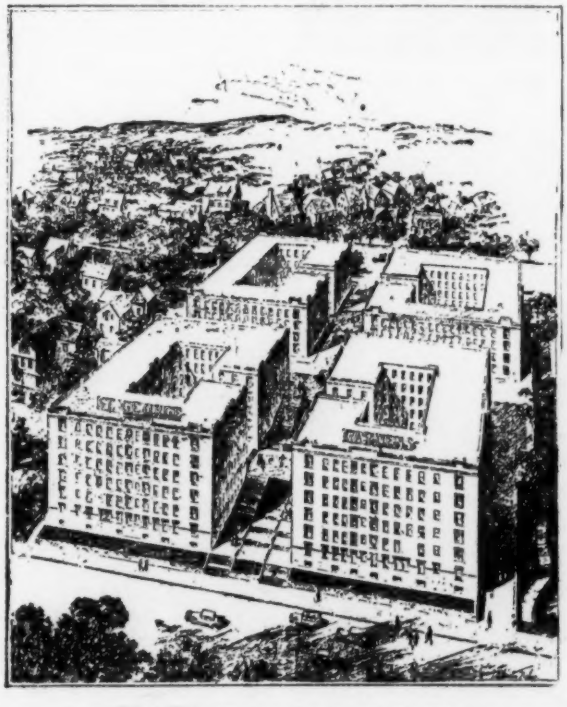
Acting Chief Fire Marshal John P. Prial with Assistant Fire Marshal William Cassidy, questioned the builder and others. The houses were built to accommodate 318 families. The builder held no insurance, but the mortgagee—the Metropolitan Life Insurance Company, had the risk insured. The buildings were the largest residential structures on the whole of Staten Island—

**All That Is Left of the Damaged Wing of the St. George Gardens**

a $1,200,000 undertaking, but the loss is estimated at about $300,000.

Preliminary investigation indicated that the plasterers on the job struck six weeks before the fire over some alleged grievance about hiring men from outside the island. It was while the issue was being arbitrated that some plasterers were reported to have gone back to work the day before the fire.

Chief Kenlon expressed himself as being highly satisfied with the manner in which Acting Deputy Chief Spencer, and the local fire department fought what is considered the largest fire on Staten Island in the past five years. As Chief Kenlon was



**A Developer's Dream Destroyed by Flames**

The unit in the right foreground of the St. George Gardens at Staten Island was destroyed. Good work on the part of the fire department prevented the flames from destroying the other units.

crossing over on the ferry from Manhattan, he saw the sky darken and he knew that the fire was under control.

## Kalispell Prepares For Fire

A large building erected in Kalispell, Mont., was prepared against possible fire damage by the installation of a metal plate that acts both as a scupper to remove water remaining on the floor, and to enable the department to lower a revolving nozzle through the floor, to protect merchandise below.

The brass plate is flush with the floor. A center plate in this fitting can be removed so that there is a six-inch opening through which the nozzle can be inserted. The entire plate is about one foot in diameter. In this particular installation, the plates are set in the floor at a distance of twenty-four feet apart.

There is an ordinance now in Kalispell, according to Chief J. E. Uehlinger, that all new business houses must have these plates installed.

## City Block Threatened at Sharon, Pa.

Fire of undetermined origin destroyed the DeForest Block at Sharon, Pa. and caused damage, estimated by the fire department, at $130,000. Only good work by the department prevented the spread of the blaze to nearby buildings.

Chief Fred Vanderholt, Sr.

The building destroyed was sixty-five years old, constructed of wood, two stories in the front and three stories in the rear. The fire started in the basement. It was discovered by the man who comes around in the morning to care for the furnace.

The fire burned for three hours. It was necessary to call aid from Farrell, and aid was offered by the Westinghouse plant, located there. When the fire department arrived the basement was all afire and the flames were creeping up the elevator shaft.

The alarm called out a White hose and chemical car, a squad hose and chemical car, and on the second alarm a White triple combination car, and the Farrell department sent an American-La France triple combination pumper.

The loss on the buildings was $52,000 and the loss on contents, $76,000. Chief Fred Vanderholt, was in charge of the fire.

## WHAT'S BURNING

**THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.**

### Week Ending February 8

| | |
|---|---|
| LINCOLN, NEBR.—Frederick Bros. store damaged | 50 |
| OTTAWA, ONT.—Savoy House and adj. property | 65 |
| HENDERSONVILLE, N. C.—Ewbank bldg. destroyed | 30 |
| LOUISVILLE, KY.—Plant of Southern Signal Co. | 35 |
| W. ROXBURY, MASS.—Bldgs. of Carlson Lumber Co. | 40 |
| BOONEVILLE, KY.—Owsley County Courthouse | 65 |
| SACRAMENTO, CALIF.—Sutter Theatre damaged | 40 |
| CALUMET, MICH.—Washington High School bldg. | 125 |
| BAYONNE, N. J.—Aronsohn-Bloom Silk Mill damaged | 165 |
| WATERPROOF, LA.—Mill of Chicago Lumber Co. | 80 |
| BROOKLYN, N. Y.—50-56 Bushwick Avenue damaged | 40 |
| ABILINE, TEXAS.—Adm. Bldg. Christian College | 65 |
| FALKIRK, N. D.—Elevator, Schult Grain Co. | 30 |
| SOUTH BOSTON, VA.—Whse. of Grand Central Tobacco Co. | 200 |
| KINGSTON, N. C.—Adlar Bros. Dept. store | 160 |
| ROCHELLE PARK, N. J.—"Swiss Chalet" roadhouse | 80 |
| TOMS RIVER, N. J.—Traco Theatre damaged | 50 |
| EASTHAMPTON, N. Y.—Bldg. occupied by Gregory Dept. store | 80 |
| LOUISVILLE, KY.—Bldg. occupied by Grin Decorating Co. | 80 |
| PUNNECHY, SASK.—Indian School destroyed | 200 |
| GARY, IND.—Hotel, Broadway and 11th St. | 40 |
| BIRMINGHAM, ALA.—Plant of Cudahy Packing Co. | 80 |
| NEW YORK, N. Y.—Residence of Otto Marx, Riverdale Dist. | 800 |
| ST. PAUL, MINN.—Plant of La Salle Products Co. | 165 |
| CRARY, N. D.—Lumber yard of Lamb & Rieter | 25 |
| CAPE GIRARDEAU, MO.—National Guard Armory | 45 |
| KNOXVILLE, TENN.—Knox Co. Prisoner Camp barracks | 125 |
| ST. STEPHEN, N. B.—Marks Building destroyed | 25 |
| OWEN SOUND, ONT.—Plant of Dominion Linseed Oil Co. | 65 |
| BOSTON, MASS.—Home of R. Frothingham, damaged | 40 |
| GREEN BAY, WISC.—Shop of Vocational High School | 25 |
| SPRING VALLEY, WISC.—High School Bldg. destroyed | 45 |
| HENDERSON, KY.—Rash Bros. Tobacco factory | 25 |
| MOBERLY, MO.—High school bldg. destroyed | 125 |
| HANNIBAL, MO.—Elks bldg. damaged | 30 |
| APPLETON, WISC.—Bldg. of Gibson Ford Rental Co. | 25 |
| VAIL, IA.—Whse. of Monaghan-Sheridan | 25 |
| WATERVLIET, N. Y.—Plant of Goodwin Corp. | 40 |
| MASONTOWN, PA.—Four bldgs. destroyed | 25 |
| MILWAUKEE, WISC.—Bldg. occupied by Parker Co. | 40 |
| CHICAGO, ILL.—Garage, Lafayette Ave., 119th St. | 40 |
| FARIBAULT, MINN.—Grand Theatre block | 160 |
| CEDAR GROVE, WISC.—Business bldgs. destroyed | 80 |
| FRANKLINVILLE, N. Y.—Chronicle-Journal bldg. | 40 |
| FLEMINGTON, N. J.—C. W. McCutcheon barn, 2 mi. E. | 25 |
| OMAHA, NEBR.—Stock of Escoros Tahib Fur Co. | 25 |
| JESSUP, PA.—Sunnyside Colliery damaged | 250 |
| LOGAN, OHIO—Shop of Logan Mfg. Co. | 80 |
| STRUTHERS, OHIO—Schwartz dept. store damaged | 45 |
| DURAND, WISC.—Whse. of Durand Canning Co. | 80 |

### Week Ending February 15

| | |
|---|---|
| TYNDAL, S. D.—High school bldg. | 45 |
| PATERSON, N. J.—Mill property of S. Pollock | 250 |

**Fighting a Fire in Sharon, Pa.**

Fire swept through the DeForrest Block, at Sharon, Pa., destroying the contents of two stores and wrecking the buildings. Three other structures were badly damaged, causing a total loss of some $250,000. The illustration shows the fire department of Sharon handling the fire.

**Five Alarms Needed at New York Loft Building Fire**

Eight firemen were injured while fighting a five-alarm blaze caused by fire roaring through three loft buildings on lower Fifth Avenue, New York City. Only good work by members of the department prevented the blaze from assuming greater proportions. Grover Whalen, police commissioner, was in active command of the police reserves stationed about the area.

| | |
|---|---|
| HENDERSONVILLE, N. C.—Patterson Dept. store | 30 |
| LAWRENCEVILLE, PA.—Plant of Construction Corp. | 35 |
| SABINA, OHIO.—Perry Webb business block | 35 |
| S. HELENA, ARK.—Plant of Kurz Bros. Lumber Co. | 45 |
| MINNEAPOLIS, MINN.—Plant of Hooven & Allison | 30 |
| NEWARK, N. J.—Oil plant of A. Cross & Co. | 25 |
| MONTREAL, QUE.—Whse. of Fraser Bros. damaged | 125 |
| CLEMENTS, MINN.—Bldg. of J. F. Steffies | 30 |
| BERNE, IND.—Factory of Nusbaum Novelty Co. | 65 |
| MAYNARD, MINN.—Vold Hdw. store, adj. property | 40 |
| HARTFORD, CONN.—Lacquer dept., Royal Typewriter Co. | 40 |
| NEWPORT, MICH.—McKenzie grain elevator destroyed | 30 |
| UNION CITY, N. J.—Two stores, Bergenline Ave. | 70 |
| DURHAM, ONT.—Hunter's seed elevator | 70 |
| WORCESTER, MASS.—Chapin Bldg., Pearl St. | 100 |
| MONROE, MICH.—Masonic Temple and two churches | 80 |
| RICHMOND, VA.—Columbia Furniture Co., Inc. | 100 |
| HOLDENVILLE, OKLA.—Warehouse, Griffin Grocery Co. | 80 |
| PLATTSBURGH, N. Y.—M. H. Fishman Co., adj. property | 400 |
| GLENCOE, ILL.—Home of Frank Selden destroyed | 40 |
| CARTERVILLE, ILL.—Lyric Theatre destroyed | 40 |
| VANCOUVER, B. C.—Storage sheds of Barrett Co. | 30 |
| MONTREAL, QUE.—Arcadia Ballroom destroyed | 25 |
| BUFFALO, N. Y.—Plant of Buffalo Pressed Steel Co. | 80 |
| MONTICELLO, IA.—Laude Tie factory destroyed | 25 |
| LEXINGTON, KY.—Main building, St. Joseph's Hospital | 165 |
| TORONTO, S. D.—Business property destroyed | 25 |
| ROXANA, OKLA.—Plant of Shell Petroleum Corp. | 150 |
| SPRAGUE, WASH.—Business property destroyed | 30 |

## Central Fire House Urged for Poughkeepsie

Chief Cris Noll of Poughkeepsie has a plan whereby a new central fire station to house all the companies and the fire alarm system can be placed in service without any cost to the city. He pointed out that the city has three fire houses that could be sold at an estimated price of $130,000. The cost of the new central station has been placed at $100,000. In addition, he stated that if this plan was not followed, it might be necessary to spend $25,000 for a suitable place in which to house the fire alarm central apparatus.

Chief Noll is in favor of using the Administration Building on Washington street for the central station. It is his plan to house three or four companies in this building. He said:

"It is an out and out business proposition that the city can not afford to pass up. It is seldom that a city gets the chance to bring about a great civic improvement not only without cost but with actual financial benefit."

## Fireman Killed in Knoxville Accident

A fire apparatus driver was killed and six firemen were injured when two companies responding to an alarm in Knoxville, Tenn., crashed while traveling at a high speed. The sirens on both machines were operated almost continuously so that it was impossible for the driver of one company to hear the warning signal of the other.

As the heavy apparatus was crossing Winona street, it ploughed into the roadster of Assistant Chief Suddarth. There was a deafening crash. The roadster was hurled into the air, turned over, and settled about twenty feet from the scene of the collision. The truck was swung around.

The apparatus driver was hurled from the machine and thrown about twenty-five feet from the car, striking the curb head first. He was killed instantly.

The accident was blamed on some road repair. Because of the closed street, it was necessary for the department to use a detour, and the two department cars crossed each other's path.

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**Naches, Wash., to Postpone Purchase**—Naches, Wash., has decided to postpone action on the proposed apparatus purchase, until the rural fire district law has become more definitely established.

**Maryland to Act on Right-of-Way Law**—A bill has been introduced in the Maryland legislature to give right of way to fire apparatus on state highways and county roads, and makes violation of this measure a state offense.

**Phillipsburg, Pa., Has Bad Fire**—Nearby communities were called to help Phillipsburg, Pa., fight a fire that broke out in a frame apartment house at 4:40 a. m. Eight lines made up of 4,200 feet of hose were used. The loss was the greatest in the past three years, and even exceeded the total fire loss for 1928.

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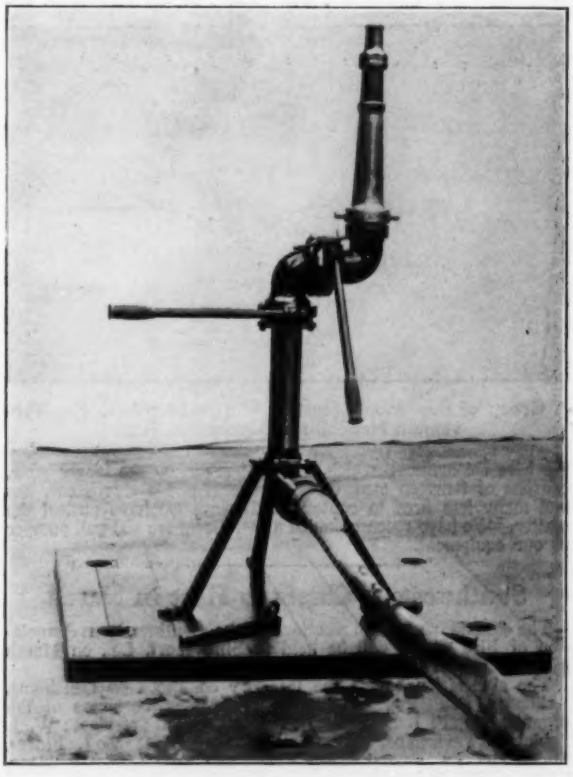


**Here Is the Latest in Nozzle Design**

This is a nozzle that has been developed by the fire brigade of Edinburgh, Scotland. It is a portable device by which large jets can be readily controlled and directed by one man, and is capable of being left unattended. The device consists of a vertical pipe with hose connection at the bottom; it is supported on a tripod fixed to a wooden base. At the upper end are two swivel joints and two levers to change the direction of the stream.

## MANHATTAN, KAN., CHIEF USES BOY SCOUTS IN FIRE PREVENTION

**Utilizes the Members of the Organization for the Distribution of Handbills on Evils of Carelessness—Small Fire Loss**

By Chief P. L. NOBLE
Fire Department, Manhattan, Kan.

I HAVE found the members of the Boy Scouts of considerable assistance to me in the work of fire prevention in Manhattan. I am a firm believer in "putting the fires out before they start," and I have taken advantage off the offer of the services which a troop of Boy Scouts made to me. The smaller view herewith shows a group of these youths while engaged in covering the city with handbills emphasizing the necessity for care in matters of fire prevention. One of these handbills is reproduced here.

The way that these youths have taken hold of the fire prevention matters of the city has opened my eyes to the advantages of using this means of increasing interest among the people in lessening the fire loss. The Boy Scouts have and will continue to be a great help to the Fire Department in this particular and I am enthusiastic about the results I have obtained through their services.

Besides the actual work they have done in distributing the hand bills, and so on, the influence of the youngsters in their homes as regards the increase among the parents of care in fire prevention matters has been of considerable assistance.

I am glad to say that we have been able to cut our fire loss in Manhattan very considerably since taking up fire prevention, and

**A Group of Boy Scouts Starting Out to Distribute Fire Prevention Handbills in Manhattan, Kan.**

the Fire Department, which, as will be seen by the larger view, consists of fourteen men, three apparatus and a chief's car, has had many less fires to contend with since we have pushed the matter. We have recently added a new Seagrave 600-gal. pumper to our equipment.

## Southwestern Chiefs to Meet in March

The second annual convention of the Southwestern Association of Fire Chiefs will be held in Shreveport, La., on March 25-27. An interesting program is being prepared.

The association covers the territory embraced by Oklahoma, Arkansas, Louisiana, and Texas. The present officers of the organization are J. E. Taplin, Blackwell, Okla., president; W. J. Springer, Texarkana, Ark., first vice-president; S. J. Flores, Shreveport, La., second vice-president and Tom Lyle, Okmulgee, Okla., secretary.

**New Station Urged for Bellingham, Wash.**—Representatives of the Fourth Ward, Bellingham, Wash., are urging the construction of a bungalow type fire station to replace the present building which has been termed "a disgrace and an eyesore."

## Boston Firemen Hold Golden Ball

The golden anniversary ball of the Boston Fire and Protective Departments was held in Mechanics' Hall, Huntington Avenue, Boston, Mass., on the evening of Feb. 12.

Edward J. Powers, of Ladder Company No. 8, was floor marshal; John M. Harrington, of Engine Company No. 30, was first assistant, and James F. McFadden, of Engine Company No. 7, was second assistant marshal.

Capt. John Leary, of Ladder Company No. 2, was chief of aids. The reception committee was composed of Fire Commissioner Eugene C. Hultman, Chief Daniel F. Sennott, Supt. Henry R. Thompson, of the Boston Protective Department; Capt. Joseph Shea, of Engine Company No. 41; Lieut. David Sheehan, of Tower 3; Michael J. McGonagle, of Engine Company No. 2; Edward J. Coveney, of Engine Company No. 25; David Murray, of Ladder Company No. 9, and Capt. Samuel McDonnell, B. P. D.

**The Fire Department and Apparatus of Manhattan, Kan.**

The receipts were for the benefit of the Boston Firemen's Relief Fund of which Lieut. Fred J. Dobbratz, of Ladder Company No. 18, is president; Harry J. McNealey, of Engine Company No. 23, is secretary, and James J. Higgins, of the high pressure service, is treasurer.

HARRY BELKNAP.

**Seal Beach, Cal., May Buy Apparatus**—Seal Beach, Cal., is considering the purchase of fire apparatus.

### 80% of all Fires are due to Carelessness

***Fire Prevention is a matter of Education —***

Help Manhattan Win Her Campaign Against Fire by Being Careful

**A few simple ways in which you can help**

1. Have your furnace and chimneys cleaned out before starting your fire this fall.
2. Keep all papers, boxes and trash away from furnace.
3. When you first start your furnace don't try to burn all trash at one time. A smaller fire gives less opportunity for causing the burning out of flues.
4. Remove all dry leaves from gutters on roof. They make a fine place for sparks to lodge. Result — a roof fire.
5. Always see that you turn off your electric iron when through.
6. Never try to "hurry" fire in a stove by using coal oil.
7. Never start burning leaves and grass on windy days. Burn them in the morning and stay around to watch so that fire does not get too near buildings. Keep children away.
8. Never do any cleaning with gasoline in closed room, and always keep oily rags or mop in metal container. Also keep matches in tin box with lid.
9. Never try to thaw frozen water pipes by starting a fire with rags or papers—better call a plumber or use a blow torch.
10. Never hang ordinary light cord on nail—tie string to cord and then tie cord to nail. This avoids a short circuit.

**Manhattan's Motto is**

***"No Fires Today"***

**but remember you must help**

Every home should have a 2½ gallon Fire Extinguisher. It is mighty good insurance.

P. L. NOBLE, Fire Chief.

**A Typical Handbill Used by Chief Noble, of Manhattan, Kan., in Fire Prevention Work and Distributed to the People by Members of the Boys Scouts**

# OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

## POINTERS ON TRAINING MEMBERS FOR SMALL FIRE DEPARTMENTS

**Firemen Should Become Acquainted With Department Manual and Should Be Tested for Their Knowledge—Boy Scouts Will Aid Work**

By F. DUBOIS
Chief of Fire Department, Kenora, Canada*

As soon as a man joins the fire department, he must be made to realize that he at once becomes a public servant and that it is his duty to serve to the best of his ability, the best service possible for the welfare of the organization that he belongs.

The organization on the other hand must assist in making him proficient and efficient. He should have a proper set of rules and regulations as well as a fire department manual describing the different duties that the men are called upon to perform in their daily work.

A good plan to follow in a volunteer department is to have the men study their manuals say about three months or so before the annual elections then be made to write up on them. The results will show who are proficient and most suited for filling the different offices of the department. Outside of the chief the most important position to fill is the instructor. He should be given the privilege to hold regular practices and classes where actual training with tools and apparatus is dealt with as well as instructions in fire prevention.

Every man should be continually in touch with the department by having a small gong or a telephone in his home or at his work. Signal lights in theatres and skating rinks or other places of amusement helps to get men at the fire.

Competition in first aid is a valuable item to instigate among the members of your department as it will be needed sometime or another.

As a mark of appreciation for any special act of heroism, or of a special act performed by any individual during the course of their duties at fires, or on off duty such as saving a life or lives from drowning or in serious accidents, there should be a special medal or mark of some description provided. This will keep the men tuned up and always on the alert for rendering aid when aid is required.

Fire Prevention of the proper kind assists greatly in keeping down losses. A good program to follow is to have the Boy Scouts enrolled as Junior Firemen and their services will be found very valuable in this work. Fire inspections of the premises in the principal portions of the town will prove very useful if notes are kept of the special advantages that will prove useful in case of a fire. Small sketches or plans should be made and kept for the use of instruction of the men at their instruction classes. Knowing the layout of the buildings means a lot to the firemen when a fire occurs. This information is worth keeping track of and changes being made should also be recorded.

During industrial inspections it is good business to acquaint yourself with the manner in which your department can render the best aid when a call is received. Harmony and co-operation with these establishments means property saved when help is afforded. It is also important that the hose threads be the same in all instances.

A demonstration booth at the annual fair is also a good proposition in fire prevention for the homes and premises of people living in the country, as well as for owners of summer resorts. You will find officials of such fairs willing to assist if you put the matter up to them in the proper way. It has proven very satisfactory wherever tried.

*Abstract of paper presented at convention of Dominion Association of Fire Chiefs, Kingston, Ont., Canada.

## Hotel Destroyed in Ridgefield Park

Hampered by the intense cold, volunteer firemen of Ridgefield Park, N. J., were unsuccessful in saving the Armstrong Hotel after fire had been discovered early in the morning. It was so cold that the men had to keep moving, for if they remained for several minutes at one spot the ice froze the boots to the ground.

Shortly after the alarm was turned in, an explosion caused a section of the roof to heave upward. With the start obtained, there appeared to be little chance to save the hotel.

## Fire Makes 2,500 Homeless

Four hundred houses were burned and about 2,500 persons were made homeless when a fire visited Tatavia, a suburb to the north of Pera, the European part of Constantinople, recently.

**Two Hundred Houses Razed in Constantinople Conflagration**

Fanned by the winds of a fierce blizzard, fire destroyed two hundred homes in the Greek quarters of Constantinople, Turkey. The fire burned for seven hours. Six hundred persons were made homeless and were forced to seek shelter elsewhere from a blinding snowstorm that was raging at that time. The photograph shows some of the ruins. In the distance can be seen the snow capped roofs of the city proper.

Tatavia is a thickly populated section with wooden houses inhabited by Greek artisans.

At the time of the fire, the ground was several inches deep with snow and it was one of the coldest days of the Winter. The intense cold added to the distress of the victims and it was pathetic to observe the children, clad in the flimsiest clothing, shivering in the shelter of cupboards that had been thrown out of houses.

At one time while a north wind was blowing it was feared that the fire would spread toward Pera, where hotels and shops and the foreign embassies, legations and consulates are situated. The fire is believed to have been started in an illicit distillery. The fire brigade complained that the water supply was totally inadequate owing to frost.

## New York Firemen Are Warned

A notice has been issued by Thomas F. Dougherty, assistant chief of the New York Fire Department, warning the personnel of a man who has been collecting money on false grounds.

A man named John Cleveland of Hartford, Conn., has called at several fire stations and asked for loans of one or two dollars to enable him to return home. He has a badge of the Hampton, N. H., Fire Department of which he claims to be a member.

Company commanders are directed, in case this man calls, to have him arrested. He is wanted on a charge of bigamy, as well.

## Forming Fire Department Salvage Patrol

(*Continued from page* 144)

able to simplify training problems by sending men to the patrol school. Starting as we were at the bottom it was necessary to find and train instructors before any real attempt at building a unit could be undertaken. I selected four company commanders and sent them to the school where they received the regular course of instructions and were permitted to work with patrols on regular fire duty. On return of these officers, they acted as instructors. This has resulted in producing some forty trained salvage men, and the outcome is that at every fire there are enough trained men on hand to cover if they can be released.

Since the perfection of the motor pumper the fire department has been able to combine pumping efficiency with speed. In the majority of cases large streams are not needed although tactical safety requires that they be available at a moment's notice.

Out of the maze of experiments that have been conducted in the last few years there has been developed, among others, our plan for the use of the small line. In our plan this line is carried in the hose body instead of on a reel. Using the doughnut method of Chicago, we lay the last hundred feet of 2½" hose of the load U shaped with fifty feet in each U. The small line is connected to the last U by means of a reducing coupling and is also laid in the box in U form. The loops of these U's are turned over and separated in such a manner that they can be easily grasped. When the line is laid, the whole hundred feet of small line and the hundred feet of large line are pulled out of the box together. As the engines lay from the fire to the hydrant all of this hose is dropped at the fire building, and using this as an anchor the engine can lay a line as it goes. Two men stay with the hose to straighten it out while the remainder proceed with the engine. A large nozzle is also dropped off at the fire.

Results obtained from this system are that the small line equipped with a half-inch nozzle is ready as soon as the engine hook-up is complete, with plenty of small hose to enable the company to work around the fire without dragging the heavy 2½-inch standard. The amount of water thrown from this line will be about seventy gallons a minute as compared with a large line. Water damage will be reduced in proportion while the basic advantages of the small line, namely, flexibility, mobility, and speed will be obtained.

Should a large line be needed, as it will if the fire develops into dangerous proportions or has involved more area than was anticipated, then all that is necessary is to step back to the reducing coupling and by kinking the hose shut off the water and substitute the large nozzle for the small line which is disconnected at that time. The large line thus put in readiness for use will have a hundred feet to go on and will be in service in less than a minute.

(Abstract of paper presented at Salvage Corps Officers' Association of the United States.)

**This Is Where the Magirus Apparatus Is Made**

The photograph is a view of the Magirus Plant No. 1 at Ulm, Germany. In the background is the famous blue Danube river, and the municipality of Ulm. Magirus apparatus has been in use in Europe for many years, and a number of American cities have ordered the Magirus ladder since it was exhibited at the I. A. F. C. convention in Buffalo.

## CORRESPONDENCE

### Rural Fire Protection

*To the Editor:*

I have read with a great deal of interest the article on how to plan for the organization of a rural fire department that appeared in the February 6th issue of FIRE ENGINEERING. The contents of the article is in line with the work done in southern Illinois during the past three years. Many good things have been accomplished.

We have reduced the fire loss on farms. The Egyptian Fire Fighters Association was formed not alone with this idea in mind but to extend aid to neighboring towns in case of a large fire. The association takes in sixty-four municipalities. Many of the members are volunteer units located in large farming communities. We have taken advantage of this fact and have carried the fire prevention message into the homes on the farms.

As president of this organization, I have ever tried to advance the cause of fire prevention in our smaller towns and villages. Through the United States Bureau of Education, and with the help of the National Board of Fire Underwriters, I have been able to obtain a number of small books "Safeguarding the Farm Home Against Fire"; I saw to it that these books were taken to the farming areas and given to the farmers. A great deal of interest was thus created, and we have had very few farm fires.

We have what we term the "back-up" system. We never leave a city or a member of the organization without fire protection. I have a list of equipment which is in use by every department, the size of couplings and so forth. That is why I can dispatch the equipment to a particular district that will do the most good.

The association has established a friendly feeling with the city officials and fire departments. Many volunteer departments have been organized. Whenever meetings are held in cities, we arrange to have the public attend and to show them the necessity of fire prevention.

With kindest regards,

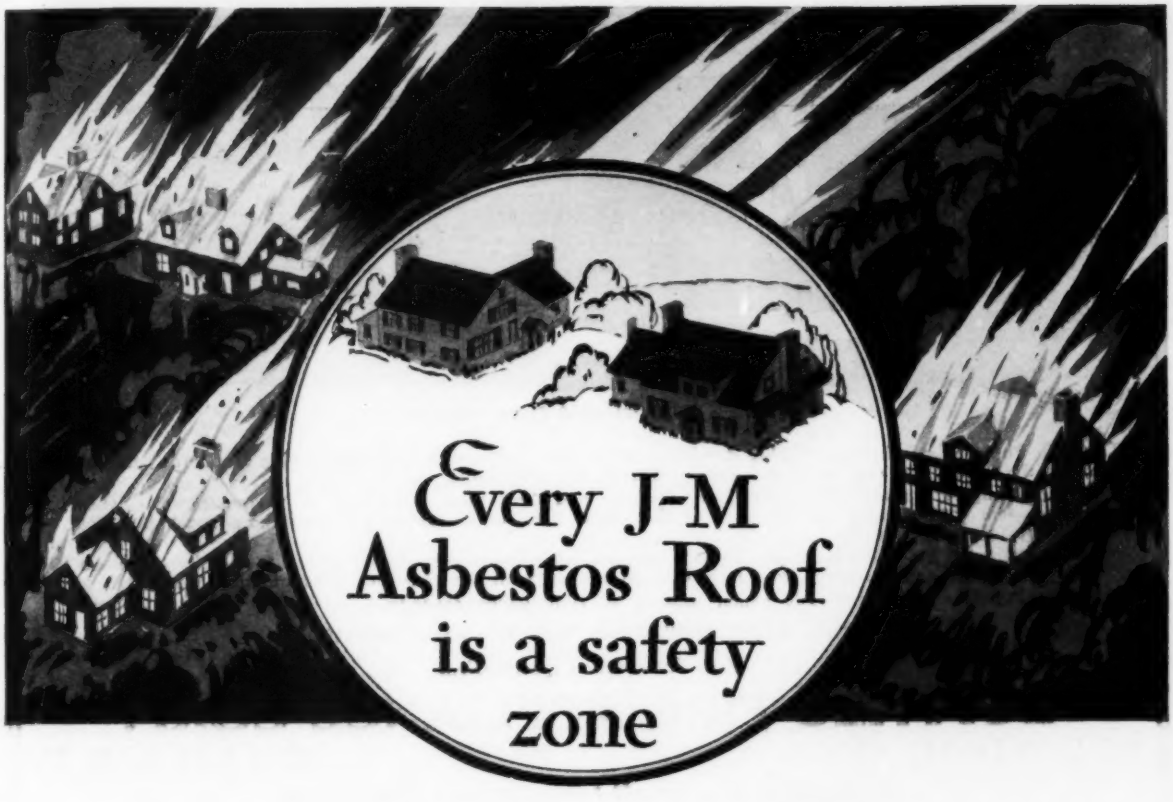
ALBERT HERRING,
Chief of Fire Department, Murphysboro, Ill.

## Fontana, Cal., Organizes Fire Department

A fire district, including twenty-five square miles, with a population of 6,000, is that of Fontana, Cal. A newly organized fire department includes two paid and twelve call men. It will be equipped with a new Seagrave 600-gal. pumper and a bungalow fire station of the Spanish type of construction is now being built.

Earl B. Reeves has been elected Chief of the Fire Department. He was formerly captain of the Central Station of the San Bernardino, Cal., Fire Department. W. W. Dreyer, the newly appointed Assistant Chief, is also from San Bernardino.

This is the first move that Fontana has made toward fire protection, there having been previously not even a hose reel or a foot of hose in the town. The longest lived building in the district is six years old.




FIRE fighters know only too well how fire will leap along a row of inflammable roofs like flame along a train of powder. Serious conflagrations have been stopped by the effective barrier of a few good roofs, plus the efficient work of firemen.

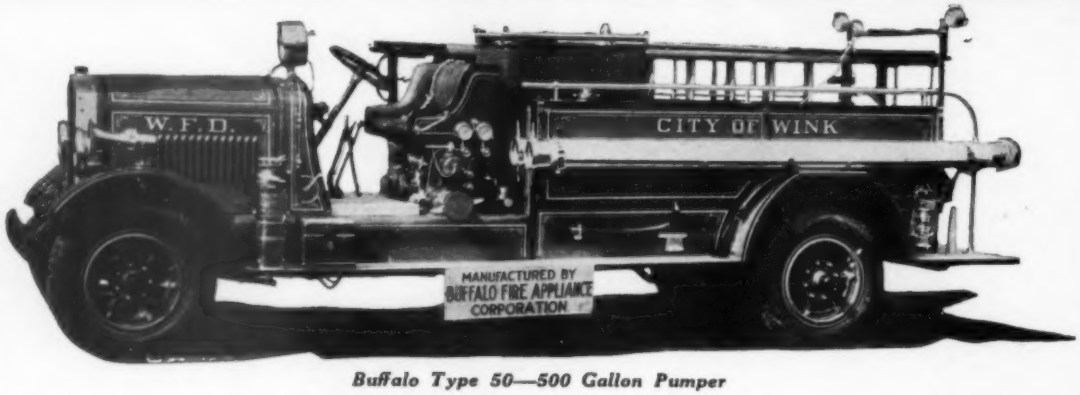
Johns-Manville Rigid Asbestos Shingles provide roofs that cannot burn. Furthermore, these roofs may be laid at low costs, which makes them suitable for small bungalows or cottages, as well as the more expensive mansion.

Johns-Manville Bonded Asbestos Roofs for flat roofed structures are also safe fire stops.

How about your own home? Have you shut fire out by putting on a J-M Asbestos Shingle Roof?

Johns-Manville

ASBESTOS SHINGLES AND
BUILT-UP ROOFING




*Buffalo Type 50—500 Gallon Pumper*

**Buffalo Pumpers** are the most highly developed in design, construction and engineering standards and are intended for municipality, community and township fire protection.

**Buffalo Pumpers** are also noted for their efficiency and their great abundance of reserve power. They are pumpers with stamina and speed. All the above have to be credited for bringing great pumping merits for Buffalo Pumpers.

**Buffalo Pumpers** are given great and careful attention when under construction at our factory by engineers, both mechanical and designing, who have been in contact with the construction of pumpers for years.

**Buffalo Pumpers** range from 300 gallon capacity to 1000 gallon capacity.

IF YOU WANT SOMETHING BETTER BUY *"BUFFALO"*

*Write for detailed specifications*

## BUFFALO FIRE APPLIANCE CORP.

44 CENTRAL AVE. BUFFALO, N. Y.

*Manufacturers of all types of Fire Apparatus*

## A FAVORITE with the Fire Fighter

**A Powerful Portable Electric Searchlight**

The EXCELLIGHT is always ready, safe, powerful, economical and simple. It is moisture and waterproof, which eliminates short circuits and greatly increases the life of the batteries. The EXCELLIGHT is indispensable, especially around places where inflammable materials are stored or manufactured.

With ordinary use the batteries will last for many months and can be replaced at small cost. Batteries are standard.

DURABLE
SIMPLE
ECONOMICAL
WATERPROOF
NON-CORROSIVE
INDISPENSABLE

***Used and endorsed by Fire Departments, Railroads and Police Departments. Always dependable.***

*Write for sample, full information and net prices.*

**THE NATIONAL MARINE LAMP CO.**

Dept. F. Forestville, Conn.

## Many Prominent Fire Chiefs Endorse

"Shuredry" WATERPROOFED **Salvage Covers**

**"SHUREDRY" Covers stand the gaff. They give unfailing satisfaction — *always* . . . as proof of which, read what Chief Cody of the Atlanta Fire Department has to say of them:**

> ***"We have been using 'Shuredry' salvage covers in the Fire Department for a period of twenty years, or more, and have received wonderful service from them. It is my opinion that your covers are superior to any on the market.***
>
> ***"It is with pleasure that I recommend your product to anyone desiring service and satisfaction."***

**Cost less, weigh less, and easier to handle and spread than rubber covers. Do not crack when folded and left on shelf.**

**Write for sample and price.**

**FULTON BAG & COTTON MILLS**

***Manufacturers Since 1870***

**Atlanta Dallas Brooklyn St. Louis**
**Minneapolis Kansas City, *Kansas* New Orleans**

## Study of Firemen's Pension Systems

(*Continued from page* 138)

ONLY two of the ten contributory systems, those of Milwaukee and Pittsburgh, provide for a refund of contributions in case of separation from the service before reaching pensionable status. Milwaukee provides that in case of withdrawal or dismissal the accumulated contributions for annuity purposes shall be returned with compound interest. In case of death, if the decedent leaves dependents no refund is made, since the plan embodies provisions for their care, but if there are none, a refund is made to the heirs or the estate. If a fireman in service at age 57 is unmarried or a widower he may receive a refund, with compound interest, of his contributions for the widow's annuity, but if he marries thereafter his widow will not be entitled to any allowance. Under the Pittsburgh plan there is no refund in case of death, but if a member withdraws or is dismissed, his contributions are returned to him without interest.

WITHOUT exception these systems make provision for widows and dependent children of members, and quite frequently it is provided that if there are no dependents of these categories, a pension will be paid to a dependent father or mother of the deceased. Under the Milwaukee system the funds for the care of dependents are financed as carefully as those for the firemen themselves, the employees and the city together contributing for the widows' allowances, and the city alone contributing for the children's allowances. Under this system in case of death from ordinary causes the widow's allowance is the annuity purchasable by the accumulated contributions for this purpose. If death occurs in the line of duty the widow receives an extra allowance sufficient to bring the annuity up to what it would have been had her husband lived and continued his contributions up to the age of 57, or to such time thereafter as he would have completed 15 years of service. For each child under 18 there is an allowance of $10 a month, or $15 if the mother is not living. In the case of a duty death, the combined allowances of mother and children may reach a maximum of 75 per cent of the decedent's final salary, but in case of a death from ordinary causes they may not exceed 50 per cent of the final salary. The ordinary widow's allowance is continued throughout her life, but the extra allowance given in case of a duty death is discontinued if she remarries.

The plans of the other cities present certain variations. Pittsburgh has no pensions for dependents, but pays a death benefit of $1,100. Detroit and New Orleans do not pension dependents unless the death was due to injuries received in the service, but New Orleans in any case pays a death benefit of $1,000. The other systems all provide pensions for the widow, whether or not the death was due to the performance of duty, but in several cities the pension is larger in case of a duty death. They also either give a monthly allowance for the benefit of each child under a stated age, or provide that the pension shall go to the children if there is no mother living, or be continued to them if the mother dies before they have reached the age limit. In all these systems the widow's pension is limited to the duration of her widowhood.

## Vancouver Fireboat Exceeds Contract

(*Continued from page* 140)

also guaranteed the upkeep. The cost of the boat is being repaid out of the reduction in insurance rates promised by the fire underwriters to False Creek property owners when the boat was placed in service. A boat house has also been provided, which, in addition, has accommodations for the crew.

The "J. H. Carlisle" has a beam measurement of fifteen feet, nine inches, three feet draft forward and three feet, eight inches to the bottom of the shoe supporting the rudder which is below the level of the keel. The fore peak compartment, separated from the engine room by a watertight bulkhead has a store room and chainlock. The after watertight compartment contains the main fuel tanks. On the forward part of the raised deck is the pilot house with water screen protection. Aft of the pilot house is a water tower twenty-four feet high with a six-inch monitor having a capacity of 3,000 U. S. gallons. A four-inch monitor with a capacity of 1,500 g.p.m. is mounted on the flush deck forward; a third monitor, 3½-inch, of 1,100 g.p.m. capacity is mounted on the after part of the raised deck. There are also six hose connections forward and six aft.

The 150 h.p. propelling engine develops its full power at 1,800 r.p.m. which is reduced by gearing to 600 r.p.m. at the propeller shaft. The propelling and pumping engines are separate units so that the boat can be manoeuvered while using her full pumping power. The two eight-cylinder pumping engines are each directly connected by flexible couplings to two-stage DeLaval centrifugal pumps with ten-inch suctions and eight-inch discharge pipes. In the design of the engines, an allowance of twenty per cent was made for possible poor fuel, poor carburation or unfavorable working conditions.

There are two independent suctions for the pump with a by-pass system by which both pumps can draw from either suction or both at once. This allows pumping to continue in case of either suction pipe becoming clogged, while the pipe is cleared by a reverse discharge of water through a suction clearing pipe also arranged on a dual by-pass system. In addition to running parallel discharging into a common pipe line at 120 pounds normal pressure, the pumps can also work in series. By having one pump force water into the other, the pump pressure can be raised to 250 pounds.

Another pump test was made for stability with the boat under way and the monitors discharging 6,000 g.p.m. athwartship at 120 pounds pressure. Only a list of six degrees was registered. There was naturally considerable drift sideways, but to offset this in actual fire-fighting conditions, ground tackle and winches are carried both bow and stern. Part of the monitors could also be used for this purpose, if necessary, thus leaving the propelling engine for manoeuvering, and guiding the boat against the reaction of the monitor discharge, if it is in the fore and aft line of the boat.

In addition to the actual pumping and propelling machinery, there is a direct connected Universal electric generating set. Electric power is used to run the two engine-room ventilating fans, the priming unit, searchlight and the lighting system. No storage batteries are carried. For alternative power, a shore connection can be plugged in. There is also an emergency lighting system connected with the starting batteries for the engines are equipped with electric starters.

**Converted Navy Tug, "Vulcan" Used at Norfolk, Va.**

With its fuel capacity of seven hundred gallons of gasoline, the boat will be able to work at a full power for over fifteen hours without refuelling. Her gasoline consumption is about forty gallons an hour.

The boat was built in accordance with British corporation requirements. The steel plates used are similar to those used in the new fire boats in service at Portland, Ore. The boat is manned by two crews of six men each, besides the captain. The day watch is ten hours and the night shift works fourteen hours.

The boats in use at Portland have attracted considerable attention, for they are easy to manoeuver, and can pass under bridges with ease. These boats, of which the "David Campbell" is one, is nearly eighty-six feet long, twenty feet extreme beam and five feet five inches draft. It is operated by two eight-cylinder engines of 565 h.p. each. Two six-cylinder engines of 425 h.p. each are connected to pumps that deliver 2,160 g.p.m. The propelling engines are also used to drive pumps. The total discharge is 10,000 g.p.m. at two hundred pounds pressure. The boats were designed by A. D. Merrill and were built by the Baker Construction Co.

**Gill, Fire Marshal of Ohio**—Ray R. Gill of Akron, Ohio, has been appointed state fire marshal and succeeds Louis F. Miller of Columbus who has been fire marshal for six years.

**Kendall Resigns as Chief of Hanford, Cal.**—Effective April 1, Chief C. E. Kendall head of the fire department at Hanford, Cal., for twenty-three years, will resign from the service. His plans for the future are unknown.

# NEW STANDPIPE RULES ADOPTED FOR THE CITY OF NEW YORK

**Board of Standards and Appeals Formulates New Regulations—To Be Published in Their Entirety in These Columns**

*HEREWITH is continued from the February 6 issue the new "Standpipe-Fire Line Rules" of New York City. The original rules were adopted by the Board of Standards and Appeals of that city on June 22, 1922, were amended July 20, 1923, and again on May 18, 1928. The finally adopted form, as reproduced herewith, was adopted July 20, 1928. Through the courtesy of Chairman William E. Walsh, of the Board,* FIRE ENGINEERING *is enabled to publish the entire new rules serially. These new rules are formulated largely through the efforts of Peter J. Maher, Fire Prevention Inspector attached to the Division of Fire Appliances of the New York Fire Department.*

Rule 57. LOCATION OF LOWER FIRE PUMP IN RELATION TO HORIZONTAL LINE CONTROL VALVES.—In a single main riser system the fire pump discharge line to riser shall be as short as practicable.

In a two (2) main riser system the pump discharge line to cross-connection shall be located between the two risers. An emergency gate valve of the O. S. & Y. type, sealed open, shall be provided in the cross-connection on each side of the discharge line connection.

In a three (3) main riser system the pump discharge line shall be connected to the cross-connection on each side of the central riser. Three (3) emergency gate valves as above shall be provided as follows: One (1) at the base of the central main riser and one (1) on each side of the discharge line connection on the riser side.

In a four (4) main riser system the pump discharge line to the cross-connection shall be centrally located so as to provide two risers on each side of pump connection. An emergency gate valve shall be provided in the cross-connection on each side of the discharge connection.

In a five (5) main riser system the pump discharge line shall be connected on each side of the third, or central riser, and shall be provided with gate valves located as described in a 3 riser system.

In a six (6) main riser system the pump discharge line shall be centrally located so as to provide three risers on each side of pump connection and shall be provided with gate valves located as described in a two and four riser system.

For the purpose of this rule a main riser is any vertical riser other than a branch riser with not more than three (3) hose outlets above the cross-connection.

Rule 58. EMERGENCY SAFEGUARDS.—For the purpose of prolonging the use of the standpipe fire lines in case of failure or break, it is necessary to provide and properly locate emergency gate valves of the O. S. & Y. type as follows:

Rule 59. EMERGENCY VERTICAL LINE CONTROL VALVES.—All standpipe fire line systems hereafter installed in buildings over four (4) stories or 50 ft. in height, and up to 400 ft., as described in Schedule B, shall be provided for as follows: In each riser an O. S. & Y. gate valve shall be provided below the first story hose outlet. If the interior stairway extends from hallway on first story to cellar the gate valve shall be located within the stairway enclosure below the first story level.

A two-way 2½-inch hose outlet tee with two 2½-inch approved valves, one of which may be capped, shall be provided in all main risers 6 ft. to 7 ft. above floor or stair landing level of first story with the O. S. & Y. control valve below the outlet tee.

Where a single main riser system or a main riser feed system is installed and the uppermost hose outlet exceeds 150 ft. above grade level there shall be provided in each riser O. S. & Y. gate valves, in addition to the gate valve below the first story hose outlet at approximately the level above grade hereafter specified.

SCHEDULE B

| Height from Uppermost Hose Outlet to Grade | Total Number of Valves Required | Approximate Location of Valves Above Grade | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1st Valve | 2nd Valve | 3rd Valve | 4th Valve | 5th Valve | 6th Valve |
| 150′ to 200′ | 2 to 3 | Below the 1 sty. outlet | 75′ | 150′ | | | |
| 200′ to 250′ | 2 to 3 | " | 75′ | 150′ | | | |
| 250′ to 300′ | 3 to 4 | " | 75′ | 150′ | 225′ | | |
| 300′ to 400′ | 4 to 5 | " | 75′ | 150′ | 225′ | 300′ | |

Rule 60. UPPER CROSS-CONNECTION EMERGENCY CONTROL VALVES.—When a two (2) main riser system is installed there shall be provided O. S. & Y. emergency gate valves between the risers in each cross-section, located within the stairway enclosure when practicable, or as near the door to main stairway of fire tower as practicable, and where the uppermost hose outlet exceeds 150 ft. above grade, the risers shall be provided with O. S. & Y. gate valves as described in Schedule B.

Where a three (3) main riser system is installed there shall be provided O. S. & Y. gate valves between any two of the risers in each cross-connection and one in the central riser at each cross-connection.

Where a four (4) main riser system is installed there shall be provided O. S. & Y. gate valves in each cross-connection between the 2 central risers, so as to provide 2 risers on each side of control valves.

Where a five (5) main riser system is installed there shall be provided O. S. & Y. gate valves between the second and third central riser in each cross-connection and one in the central riser at each cross-connection as described in a 3 riser system.

Where a six (6) main riser system is installed there shall be provided O. S. & Y. gate valves centrally located in each cross-connection so as to provide 3 risers on each side of gate valve—as described in a two and four riser system.

Rule 61. LOWEST CROSS-CONNECTION CONTROL VALVES.—When the building is provided with a fire pump as required by the Rules the gate valves required in the lowest cross-connection shall be located as described under location of Fire Pumps and Horizontal Line control valves.

Rule 62. FIRE TOWER RISER.—Where the building is provided with an exterior enclosed fireproof stairway or fire tower the main riser shall be installed in such stairway and properly protected from freezing in accordance with these rules unless stairway is adequately heated.

Rule 63. VALVE SEALED OPEN.—All O. S. & Y. gate valves shall be located in an accessible position and be sealed open in an approved manner.

Rule 64. LADDERS TO VALVES.—Where the gate valve is more than 7 ft. above any floor or stair landing a single rung iron ladder with ½-inch rungs and not less than 10 inches between strings shall be provided at each gate valve properly secured at top and bottom.

*(To be continued)*

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**Ohio May Abolish Fire Marshal's Office**—There is some talk in the Ohio legislature of doing away with the state fire marshal's office.

**N. F. P. A. Has Aviation Committee**—The National Fire Protection Association has created a committee on aviation to study this new phase of fire hazards. The chairman is Samuel D. McComb, who has just returned from Europe where he has been studying the handling and servicing of planes at the Croyden flying field in England, and at LeBourget in France.

**An Unusual Photograph of a London Fire**

Only a short while before this picture was taken during a fire in the congested section of London, England, the wall fell with a deafening crash. The buildings were part of a wallpaper factory and warehouse. Calls asking for aid were sent to nearby fire departments. Volunteers cleared an adjoining library that was threatened, of its complete stock of books.

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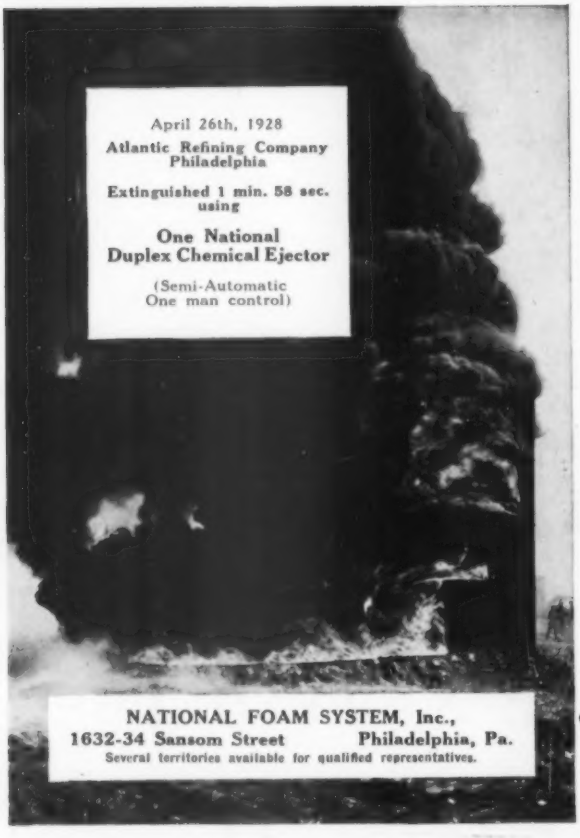


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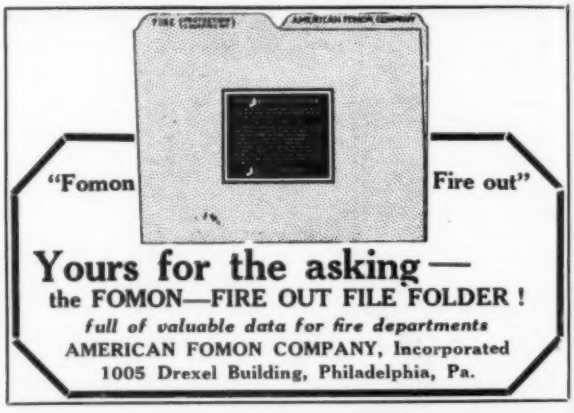


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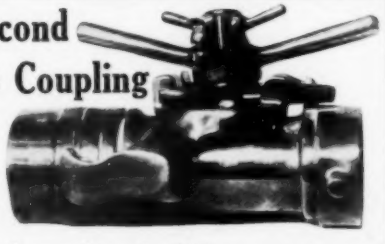

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# FIRE DEPARTMENT ACTIVITIES

**New Station for Medford, Ore.**—Work has started on a new $16,000 fire station for Medford, Ore.

**Ninety Apply for Binghamton Firemen Jobs**—Ninety candidates applied for the position of firemen at Binghamton, N. Y.

**Pleasantville, N. J., to Have New Station**—Construction has started on the new fire station for Pleasantville, N. J.

**DeWitt, Ia., to Have New Pumper**—DeWitt, Ia., expects delivery of its new fire apparatus about March 1.

**McGregor, Ia., Purchases Pumper**—McGregor, Ia., has purchased a 300-gallon pumper.

**Yonkers, N. Y., Buys More Fire Alarm Boxes**—Yonkers, N. Y., has awarded a contract to the Gamewell Co. for seventy-five new fire alarm boxes.

**New House Opened in Ft. Wayne, Ind.**—A new fire house was formally opened in Fort Wayne, Ind. The public was invited to inspect the new building.

**Detroit Ambulance Makes Many Runs**—The ambulance of the Detroit Fire Department made 110 runs last year, thirty-two of the runs being fire calls.

**N. Tonawanda Against Pension**—The plan to grant pensions to paid firemen at North Tonawanda, N. Y., was defeated because of the cost.

**Spencer, Ia., Firemen Guests at Party**—Members of the Spencer, Ia., fire department were guests of the Spencer Commercial Club at the annual Christmas party.

**Two Pumpers Delivered to Ocean City, N. J.**—Two 1,000-gallon Ahrens-Fox pumpers have been delivered to Ocean City, N. J. The apparatus will be housed at the Central station.

**Newton, Ia., Firemen to Get Free 'Phones**—The city council of Newton, Ia., will furnish the firemen with free telephone service.

**Washington Loses Plea for Fire House**—The plea to erect a fire house on Sixteenth street, Washington, District of Columbia, has been denied because of alleged zoning violations.

**Barberton, O., Increases Pay of Firemen**—Members of the Barberton, Ohio, fire department have been granted a blank increase in pay and six men are to be added on July 1.

**Bond Issue of Austin, Tex., Approved**—The $4,250,000 bond issue in Austin, Tex., has been approved. Of this amount, $75,000 will be issued for new fire stations.

**San Antonio to Have New Fire House**—Fire Commissioner Wright of San Antonio, Tex., has inspected the possible sites being considered on which to erect a fire station.

**Alameda, Cal., May Buy Ladder**—The West End Merchants' Association of Alameda, Cal., has requested the council to purchase another ladder truck.

**Sioux City Firemen to Avoid Outside Runs**—In the future, fire companies in Sioux City, Ia., will not make any runs outside the city limits unless a great emergency arises.

**Ask Eight-Hour Day for Firemen**—The United Labor Congress has demanded an eight-hour day for the firemen of Youngstown, Ohio.

**Plans Completed for Binghamton, N. Y., Station**—Plans have been made for the erection of a fire station in Binghamton, N. Y.

**Indianapolis to Erect Drill Tower**—A drill tower will be erected at Engine House No. 30, Indianapolis. The tower was formerly used by the department but was later dismantled.

**Conver Re-Appointed Ocean City Chief**—Chief Samuel B. Conver has been reappointed head of the fire department in Ocean City, N. J., for two years.

**Thirty Yonkers, N. Y., Firemen Cited**—Thirty members of the Yonkers, N. Y., fire department were mentioned in general orders for meritorious work during the past year, according to the annual report of Chief James J. Mulcahey.

**Nothing Like Trying Again**—Chief Anderson of Bethlehem, Pa., in his annual report has asked for thirty-seven additional firemen. This same recommendation has been made annually for the last ten years, but has never been granted.

**Two Battalion Chiefs Appointed in Omaha**—The city commissioners of Omaha, Neb., have confirmed the appointment of two battalion chiefs. It is believed that the appointments will be contested and the matter taken to court.

**Chief Trotter of Sheboygan, Dead**—W. R. Trotter, chief of Sheboygan, Wis., died at the age of sixty-nine, following an operation. He was formerly an officer in the Milwaukee department.

**New Rochelle Praised for Low Loss**—Chief Walter Jones of New Rochelle, N. Y., was praised by the National Board of Fire Underwriters for bringing the per capita fire loss of that city down to $1.57. It was $2.50 in 1927.

**Fire Association Formed in Minnesota**—The Cuyuna Range Firemen's Association has been formed for the better cooperation of fire departments near Cuyuna, Minn. Hugo Brueske of Crosby is secretary.

**Jefferson, Ia., May Limit Fire Runs**—Jefferson, Ia., is considering whether the fire apparatus should be permitted to leave the city to answer outside fire calls. No definite action was taken.

**Plans Made for Staten Island Fire House**—Plans have been drawn for a proposed fire station to be erected at Tottenville, Staten Island, N. Y., at a cost of $70,000. The new building will house two fire companies.

**New Britain, Conn., Wants New Station**—Chief Noble of New Britain, Conn., has included $50,000 in his tentativet budget, for the erection of a new fire house for the protection of the West End. He also asks for two new pieces of apparatus and a touring car, and sixteen additional firemen.

**Red Bluff Chief Vice-President of Association**—Thomas S. Ward, chief of Red Bluff, Cal., has been named vice-president of the California Firemen's Association and is in charge of the northern section of the state.

**Pitman, N. J., to Limit Outside Calls**—Unless the call comes from an authorized member of the fire department, Pitman, N. J., will not respond to calls that are sent from nearby communities. This plan is new and will be tried for three months before it is finally adopted.

**Receivers of Stutz Company to Make Payments**—Final settlement with the creditors of the Stutz Fire Engine Co. has just been made on the basis of 10½ cents on the dollar. The company, located at Indianapolis, went into a receiver's hands on December 10, 1927.

**New Fire House Opened in Beverly Hills, Cal.**—Fire Station No. 3 has been opened in Beverly Hills, Cal. The central fire station serves the business section of the city, Station No. 2 is located on Coldwater Canyon Drive and protects the northern area, and the new station serves the southern district.

**Snow Helps to Cut Down Fire Losses**—Although a heavy blanket of snow hampers automobile and road traffic, according to Chief Burnett of Des Moines, Ia., it has helped to cut down the number of roof fires during January. Last year there were 252 shingle fires caused by sparks on dry shingles.

**Firemen Are Not Roof Cleaners**—Members of the fire department will no longer help residents of Dubuque, Ia., remove snow and ice from roofs. City officials pointed out that it is up to the resident and not the fire department to try to avoid the hazard due to ice or snow falling down on pedestrians.

**N. Tonawanda Firemen Will Not Get Increase**—Firemen at North Tonawanda, N. Y., have been advised that they will not receive a pay increase this year, but the city council will try to establish an adequate pension fund for the men, if the cost is not too prohibitive.

**Indianapolis Reviews Activities for Year**—A total of 74,358 inspections were made in 1929 by the fire prevention bureau of Indianapolis. Of the inspections made, 9,842 orders were issued to correct conditions where fire hazards existed. Rubbish and paper was the chief hazard found; defective flues was the second major cause.

**Omaha Department May Be Decreased**—Twenty-three men may be dismissed from the Omaha, Neb., fire department, and one or two fire houses may be closed in an effort to effect economies in the department. The fire commissioner said, "The situation is a serious one and no other policy can be followed." If the stations are closed, three captains will be reduced in rank.

**Urge Raise for Chief H. J. Callahan**—The board of directors of the Chamber of Commerce, Fort Dodge, Ia., and others are working for an increase in pay for Chief H. J. Callahan. At present he receives $1,980 a year while the chief at Mason City receives $3,300 a year. In the four years that Mr. Callahan has been head of the fire department he has established an enviable record.

# PROPOSED IMPROVEMENTS

**O'Fallon, St. Clair Co., Ill.**—Fire department passed motion to purchase new piece of fire apparatus.

**Story City, Story Co., Iowa**—City contemplating purchase of fire apparatus, according to reports. A. Williamson, City Clerk.

**Columbus, Franklin Co., Ohio**—Council ordered appropriation of $25,000 for erection of new fire station near Dunedin road and High street.

**Lakeview, Lake Co., Ore.**—Plans for the purchase of a new pumper being made by Lakeview Volunteer Fire Dept., Wm. Arzner, Chief.

**Newington, Hartford Co., Conn.**—At special town meeting it was voted to expend $35,000 for establishing of fire department with modern equipment. Plans include the following: Township should purchase three 500-gallon pumpers; two additional sirens to be installed at Maple Hill and Newington Junction; etc.

**Medford, Middlesex Co., Mass.**—Supt. of Wires, Harry A. Gaffney has requested $36,000 for new equipment for fire alarm system and $2,500 for extension of underground signal service, according to press reports.

**Montreal, Que., Can.**—At election held Jan. 8, 9 and 10 city voted in favor of the $1,500,000 bond issue for fire alarm system, and $390,000 bond issue for construction of fire and police station.

**Logan, Hocking Co., Ohio**—Conference was held recently of City Council and Fire Chief Walter Nixon to determine needs of fire department, according to reports.


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## CONVENTION DATES

March 25-27—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 2nd Annual Convention, Shreveport, La. Secretary-Treasurer, Chief Tom Lyle, Okmulgee, Okla.

April 1-3—FLORIDA STATE FIREMEN'S ASSOCIATION. 4th Annual Convention, Key West, Fla. Secretary, F. C. Pfaender, Winter Haven, Fla.

April 11-13—ARIZONA STATE FIREMEN'S ASSOCIATION. 6th Annual Convention, Yuma, Ariz. Secretary, Chief W. J. Nemeck, Douglas, Ariz.

May, June or July—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 24th Annual Convention, Columbia, S. C. Exact date to be decided later. Secretary, Richard S. Hood, Sumter, S. C.

May 13-16—NATIONAL FIRE PROTECTION ASSOCIATION (International). 33rd Annual Meeting Memphis, Tenn. Technical Secretary, Robert S. Moulton, 60 Batterymarch Street, Boston, Mass.

May 27-30—OKLAHOMA STATE FIREMEN'S ASSOCIATION. 35th Annual Convention and State Firemen's Training School, Muskogee, Okla. Director of School, Chief J. E. Taplin, Blackwell, Okla. Secretary, Charles Slemp, 820 East 19th Street, Oklahoma City.

June—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. Tentative as to Conventions and first Fire School in Kansas, Newton, Kan. Exact date to be announced later. Secretary of both Associations, Chief K. D. Doyle, Wamego, Kan.

June—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. 23rd Annual Convention, Binghamton, N. Y., (Tentative, as final arrangements have not been perfected). Secretary, Chief James H. Golden, Fire Department, Cohoes, N. Y.

June—SOUTH DAKOTA FIREMEN'S ASSOCIATION. 13th Annual Convention, and Tournament. (Tentative) Hot Springs, S. Dak. Secretary, M. C. Sullivan, Parkston, S. Dak.

June 12-13—NORTHERN INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. 24th Annual Convention, Bremer, Ind. Secretary-Treasurer, Hugh Russell, Bluffton, Ind.

June 12-14—MARYLAND STATE FIREMEN'S ASSOCIATION. 37th Annual Convention, Lonaconing, Md. Secretary, George R. Lindsay, Hagerstown, Md.

June 15—LEBANON COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Myerstown, Pa. Secretary, William I. Kutz, Box 233, Myerstown, Pa.

June 20-21—EASTERN ASSOCIATION OF FIRE CHIEFS. 2d Annual Convention, New York City. (Meeting place to be decided later.) Secretary, T. Howell Johnson, Room 602, Chamber of Commerce Bldg., Newark, N. J.

June 24-28—AMERICAN WATER WORKS ASSOCIATION. 49th Convention, Hotel Royal York, Toronto, Ont., Can. Secretary, Beekman C. Little, Rochester, N. Y. Office of Association, 29 West 39th Street, New York City.

June 25-27—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 7th Annual Convention, Hotel Taft, New Haven, Conn. Exhibits, Second Regiment Armory. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.; Chairman, Exhibits, Chief John S. Pachl, Annex Fire Department, New Haven; Traffic Manager, Geo. F. Cobb, Boston.

July 9-11—MICHIGAN STATE FIREMEN'S ASSOCIATION. 55th Annual Convention, Sault Ste. Marie, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 10-11—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 9th Annual Convention, Wilmington, Del. Secretary, Sam H. Carson, Dover, Del.

July 15-16—MONTANA STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, Butte, Mont. Secretary-Treasurer, D. E. Moser, Bozeman, Mont.

July 17-19—INDIANA FIREMEN'S ASSOCIATION. 12th Annual Convention, Gary, Ind. Secretary, Clem Smith, Fire Headquarters, Terre Haute, Ind.

August—IDAHO FIREMEN'S CONVENTION. Tentative, August or September, Idaho Falls, Ida. Secretary-Treasurer, Earl Heath, Idaho Falls.

August—MAINE STATE FIREMEN'S ASSOCIATION. 2nd Annual Convention (tentative, exact time to be announced later), Waterville, Me. Secretary, Earl E. Pratt, Fire Department, Auburn, Me.

August—UTAH STATE FIREMEN'S ASSOCIATION. 22nd Annual Convention (tentative, to be decided later), Tooele City, Utah. Secretary, Harris E. Anderson, Fire Headquarters, Salt Lake City, Utah.

Aug. 7-9—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 7th Annual Convention, Fullerton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth St., San Diego, Cal.

Aug. 7-9—SOUTHWESTERN ASSOCIATION OF VOLUNTEER FIREMEN OF NEW YORK. Annual convention, Falconer, N. Y. Secretary, Royce Alden, Falconer, N. Y.

Aug. 16-17—CONNECTICUT STATE FIREMEN'S ASSOCIATION. 46th Annual Convention, Plaza Theatre, East Hartford, Conn. Secretary D. W. Harford, South Norwalk.

Aug. 20-23—FIREMEN'S ASSOCIATION STATE OF NEW YORK. 57th Annual Convention, Saranac Lake, N. Y. Secretary, Fred A. Davis, Fort Edward, N. Y.

Aug. 26-28—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 7th Annual Convention, Gallup, N. M. Secretary-Treasurer, Theodore A. Rosenwald, Albuquerque, N. M.

Aug. 28-30—VIRGINIA STATE FIREMEN'S ASSOCIATION. 43rd Annual Convention, Lexington, Ky. Secretary, E. K. Landis, Pulaski, Va.

Sept. 3-5—KENTUCKY STATE FIREMEN'S ASSOCIATION. 1st Annual Convention, Ashland, Ky. Secretary, Captain S. G. Render, 303 Speed Bldg., Louisville, Ky.

Sept. 9-11—ARKANSAS STATE FIREMEN'S ASSOCIATION. 8th Annual Convention, Camden, Ark. Secretary-Treasurer, H. D. Compton, Central Fire Station, Little Rock, Ark.

Sept. 10-12—ILLINOIS FIREMEN'S ASSOCIATION. 42nd Annual Convention, Joliet, Ill. Secretary, Assistant Chief Roy W. Alsip, Fire Department, Champaign, Ill.

Sept. 17-18—IOWA STATE FIREMEN'S ASSOCIATION. 52nd Annual Convention, Red Oak, Ia. Secretary, E. E. Parsons, Marion, Ia.

Sept. 18-19—MISSOURI ASSOCIATION OF FIRE FIGHTERS (Consolidated with former Missouri State Association of Fire Chiefs). Annual Convention, Jefferson City, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 20-21—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 52nd Annual Convention, Atlantic City, N. J. (Tentative date, to be definitely set later by Executive Committee). Secretary, William Exall, Room 602, Chamber of Commerce Bldg., Newark, N. J.

Oct. 1-3—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 50th Annual Convention, Hotel Roosevelt, Pittsburgh, Pa. Secretary, Charles E. Clark, P. O. Box 217, Wayne, Pa.

Oct. 22-25—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 57th Annual Convention, Hotel Tutweiler, Birmingham, Ala. Exhibits, City Auditorium. Recording Secretary, Chief James J. Mulcahey, Yonkers, N. Y.; Executive Secretary, Jay W. Stevens, 1113 Merchants Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Selden R. Allen, Brookline, Mass.

## Vernon O. Murray With Mine Safety Co.

The Mine Safety Appliances Company, Pittsburgh, announces the appointment of Vernon O. Murray as district representative with headquarters at Salt Lake City, Utah. Mr. Murray has had considerable experience in mine rescue work and safety service. He was formerly in charge of the No. 2 Mine Rescue Car of the United States Bureau of Mines, stationed at Reno, Nevada.

C. N. Schultz has been appointed district representative at Buffalo, N. Y., succeeding C. M. Donahue who has been transferred to the Pittsburgh office as assistant sales manager in charge of gas detecting and recording safety equipment.

## Eliminating Scaffold Fires

A means of eliminating possible scaffold fires such as have occurred at the Sherry-Netherlands building and the Rockfeller Church fires, both in New York City, has been suggested by Howard H. George, superintendent of research, Cleveland Railway Company. He suggests the use of fireproofed lumber. He states:

"Fireproofing of wood is not unknown and may be said to have passed the experimental stage, since there are commercial plants in operation for such treatments. Certainly the cost of such work is a mere trifle compared with the money loss from fires of such proportion as those referred to; and since a considerable part of such timber is used several times on the same job and frequently on more than one job, its cost could be distributed over more than one operation.

"The fireproofing treatment of temporary construction timber would do much toward the elimination of this kind of loss and is one for which the owner should be willing to bear the cost. Undoubtedly better insurance rates during construction would be allowed where all such temporary timbers were so treated."

**Hudson, Wis., Buys Pumper**—Hudson, Wis., has purchased a Waterous pumper for $5,500.

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All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

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VALVES and BOXES
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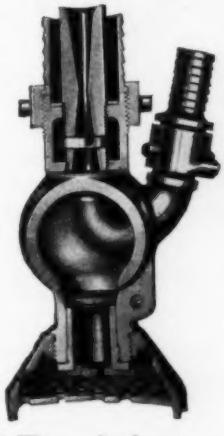
# *Water Syphon*

***to pull water, sand, mortar, charcoal and dirt out of cellars and basements!***



Put this P-B Water Syphon on the jobs that you've been handling with your pumpers. Keep expensive apparatus ready for its proper use. With one man in charge, the P-B Syphon operates from main pressure automatically, requires no other power. On 70 lbs. plug pressure it has lifted 9,900 gallons of water an hour from a 37-foot excavation. Sand, mud, mortar and charcoal cause no trouble. It handles them all. Fire Chiefs everywhere recognize the value of the P-B Syphon and use it to keep apparatus free for regular duties.

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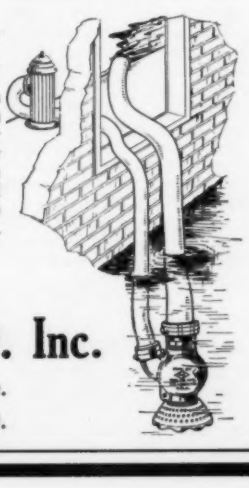


**P-B MFG. CO. Inc.**
4567 Swan Ave.
ST. LOUIS, MO.

# FALSE ALARMS

## OUR ACROBATIC FIREMEN.

Doze firemans deys soo brave an' bol'
To bodder much about de col'.
Wan night shes twenty four below
When they dash out in driftin snow

To fight de chimbly fire dat start
When blaze in stovepipe get to smart.
Doze mans do acrobattic treek
An' put de fire out pretty queek.
De nea bor say dey got de proof
'Bout how doze mans climb up de roof.
Ba gar de fire don' look lak joke
De way shees poffin out de smoke
De firemans come an' bring de hose,
Dey almos' freeze de han an' nose.
De hook an' ladder she don' come
Dey say, long time shees on de bum,
But dat don' bodder doze brave man,
Dey fight de fire de bes' dey can.
So cold: De breat' shees jus' lak steam.
Dey start de pomp an' mak de stream;
De water shoot up in de air
An' queek lak dat she freeze rite d'ere.
From chimble top to end of hose
De icicle shees solid froze.
Ba gar doze mans don' stop to wait,
Dey run back home an' brang de skate.
Den wit queek an' mighty stroke
Dey skate up dat ting to de smoke.
From den, don' seem no time at all,
Shees Out an' some wan blow recall,
Doze mans skate down an' pretty queek,
Dey broke dat ice off wit de peek.
De nea bor keep for sou van ear,
An' use nex' June to cool de beer.
Wit fire mans so brave an' strong,
De town shees tink dey get along.
Anyway dey can' see how
Dey need some hook an' ladder now.
Ba gar dey 'spect doze firemans try
To do de same ting next' July.

PLEIN DE TAUREAU.

## PRIVATE INFORMATION

At the suburban fire station, one of the men was considered the local postman. He received all mail sent to the station and distributed the letters and cards to the men—if he so desired.

The lieutenant was expecting a line from a friend as to when he would visit the station. The officer therefore shouted upstairs:

"Any mail for me?"

"Naw don't see any around. Was you expecting something?"

"A friend was supposed to write when he was to arrive."

"That's right," came the voice from upstairs, "there is mail for you. He's coming on Tuesday."

## A MAN IN NEED —

All her friends were having good times, at least she judged by the stories they told her. Only she seemed slighted. In the evening, when work at the telephone exchange had quieted down, she had more time for meditation. Suddenly there was a flash on her board. A girl's voice said:

"I want a fireman badly."

In a dreamy tone the operator replied, "That's nothing dearie, so do I."

"What is the term applied to people who set fire to other person's homes?"

"Usually ten or twenty years."

## THOROUGHLY EXPERIENCED

When a city gets the craze for civil service examinations, it generally carries such things to extremes. That is why a civil service examination was called when the chief wanted an additional clerk. In order to test the applicant's knowledge of letter writing, one problem was to write a letter in response to a help wanted advertisement. One applicant wrote the following:

"Dear Sir: Noticing you have a vacancy in the fire department for a clerk and stenographer, either lady or gentleman, having been both for several years, I beg to apply for the position."

## IT'S A GIFT

Even trombone players have birthdays. This one, a member of the department band, was also its manager, and as such had devoted many hours for the betterment of the unit. So that is why a committee was appointed to buy him a gift for his birthday.

They went to a department store in the city. Approaching a floor walker, one said:

"I'd like to get a nice birthday present for a man. He likes something to blow."

"Yes, sir. How about some handkerchiefs?"

## MERELY A TRIFLE

The night was gorgeous—moon, stars and all. He and the "only one" were strolling down a tree-darkened lane when he noticed a roof on fire. He rushed up to the door and rang the bell. An elderly man answered the ring.

"Hey, your house is on fire!"

"What?" asked the man, and by way of apology said, "I'm a little deaf."

"I say your house is on fire."

"Is that all?" replied the man in a matter of fact voice.

"Well, that is all I can think of right now."

The aisles are roped off at a wedding so that the groom can't get away.

## THE ONLY TROUBLE

It had been some time since Donogan saw Jones, his former buddy at school. But a shift in house assignments brought the old cronies together again.

"Well, how are you, Donagan?"

"Oh, I can't kick."

"What's the matter? Rheumatism again?"

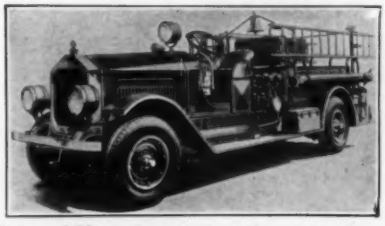
*—Drawing by "Art" Espey*

**Just as the Grand March of the Acme Hose Company's Annual Ball Was About to Commence—the Siren Sounded**

At the moment when the sweet young thing was beginning to believe the pack of nonsense that was being told to her, the siren had to interrupt the dreamy dance. Everything was forgotten. Duty called. Ladies who had seen their husbands leave for war, many long years ago, now said fond good-bys to their loving partners. Fire-fighting is a hazardous calling, and even old Peg-Leg can recall that there never was an annual department dance that was not broken into by the wail of the siren. It's not fair. The public should be educated to have their fires at some other time.

## MAXIM

All Types



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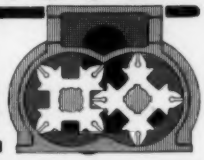

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Not a single-jacket hose, nor yet a double — but a mass-woven jacket combining the flexibility of the one with the strength of the other. Write for details.

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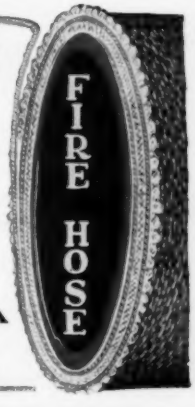
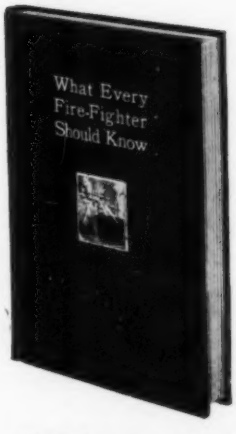



## Every Fire-Fighter Should Have This Book

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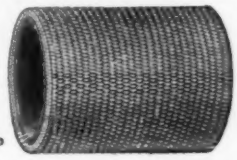

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*Incorporated 1868*

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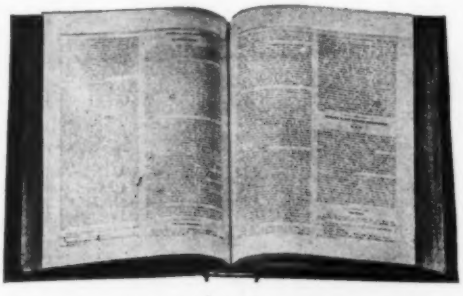

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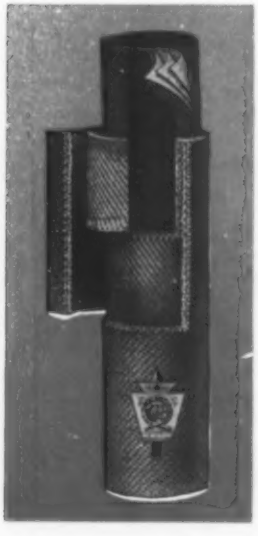

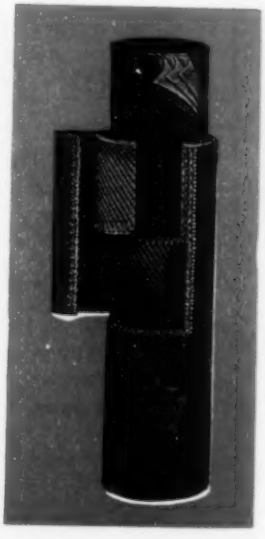

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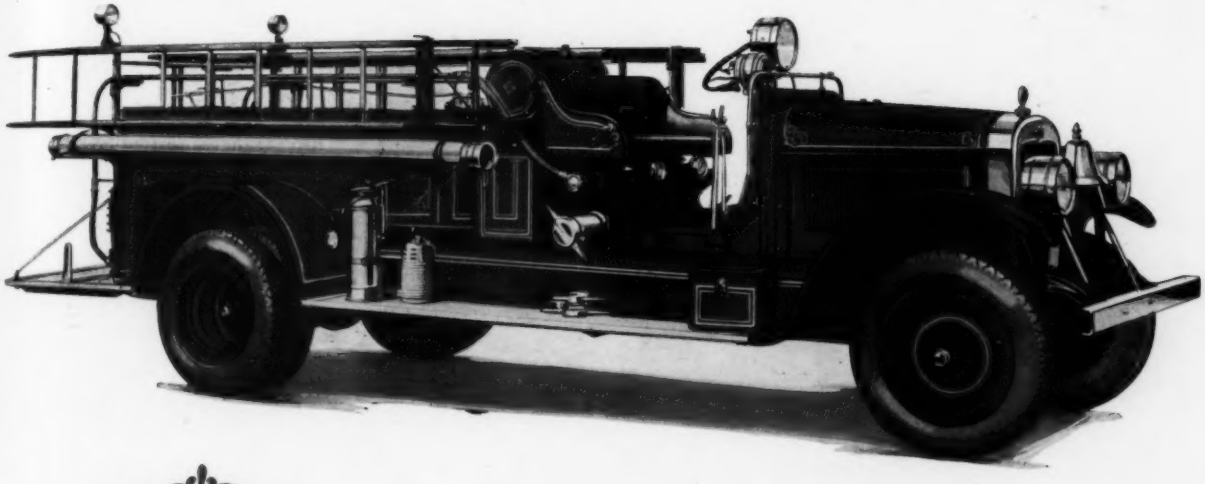
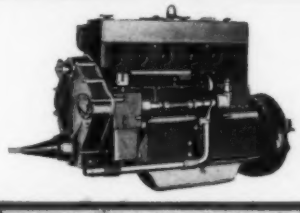
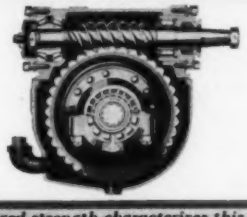
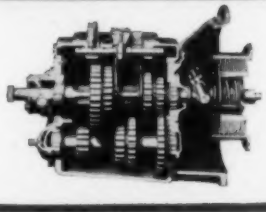




Six cylinder, over head valve, 90 horsepower motor of the Champion Pumper



Rugged strength characterizes this Timken worm gear drive—standard in all Pirsch Engines



The Pirsch Champion Pumper has this four speed forward transmission and multiple dry disc clutch

PIRSCH

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